



BUSINESS TECHNOLOGY LEADERSHIP



**READY FOR
TAKEOFF**

Virgin America's
New Low-Cost
Model

Page 60

Influence

The delicate art of making things happen Page 48

BY ALLAN HOLMES

ALSO:

Who Owns
Business
Process
Improvement?

Page 76

How to
Balance Risks
and Security
Investments

Page 44



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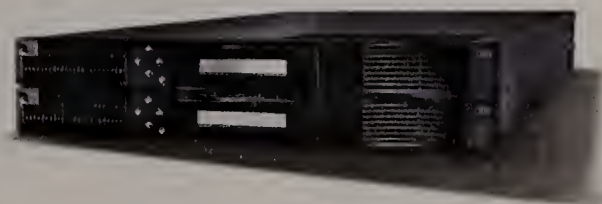
_INFRASTRUCTURE LOG

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contents

NOVEMBER 1, 2006 | VOL/20 | NO/3

Virgin America
CIO **Bill Maguire**:
"How often do you
get an opportunity
to build infrastruc-
ture from scratch?"



Columns

34 | Preludes to a Customer Kiss

CUSTOMER ALIGNMENT Getting closer to customers seems like a no-brainer—but it may not make you any more profitable than you were before. The key is to take it slow.

By George Day

38 | CIO in the Round

LEADERSHIP CIOs can push their leadership skills to the next level by using a 360 review to understand what they do well—and to start doing it better.

By Susan Cramm

44 | Get Smarter About Security Risks

SECURITY How much you should invest in protecting corporate data depends on how good you are at assessing the threat.

By David Apgar

[more »](#)

48 | Influence

COVER STORY | LEADERSHIP Without influence, you'll never get anything done. Four veteran CIOs share some tried-and-true techniques for convincing colleagues to do what's needed. By Allan Holmes

60 | Cheap Frills

MID-MARKET | STARTUP I.T. First came Southwest: low fares, no frills. Then JetBlue: low fares, a few more frills. Now Virgin America is rolling out a new low-cost airline model: low fares, deluxe service. And its success will hinge largely on a new approach to IT. By Stephanie Overby

76 | Whose Business Is Process Improvement Anyway?

BUSINESS PROCESS IMPROVEMENT Business and IT are locked in a struggle over who controls the management of business process improvements. CIOs who seek to lead the charge have their work cut out for them. By Meridith Levinson

48

Worldspan
CIO **Sue Powers**
influences her
colleagues by
"socializing" ideas.



contents (Cont.)

In Every Issue

10 | From the Editor

The relationship between *CIO* and our readers is just beginning to get real interesting. **By David Rosenbaum**

12 | From the Publisher

CIOs talk enough about the value of IT, but their message doesn't seem to be getting through. **By Gary Beach**

17 | Trendlines

- ▶ Security flaws in voting machines
- ▶ HP lessons learned: Board behavior
- ▶ MySpace: A killer app in politics?
- ▶ Where the M&As are
- ▶ How to talk to the boss
- ▶ Airplane flight decks go paperless
- ▶ Rome mapped by Wi-Fi
- ▶ Providence's mesh network
- ▶ Blogs help win the IT talent search
- ▶ Moving to the vendor side

27 | Essential Technology

Do-it-yourself integration and support for open source will cost you plenty. So will consultants. But a new, less expensive approach has emerged. **By Galen Gruman**

90 | Forum

The CIO Executive Council shares strategies, tips and insights on enterprise architecture. **By Carrie Mathews**

94 | Index

96 | Endlines

The Nightmare After Halloween
By the CIO Staff



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[CIO RESEARCH]

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[BLOGS]

OFFLINE LAWS AND THE ONLINE WORLD

"The Mark Foley case highlights how the current legal system isn't a good fit for the Internet. Our current laws are written with a sense of geography that doesn't exist online. And when Congress tries to pass a law that expressly outlaws the online version of an offline activity it usually ends up with something overly broad and/or unenforceable."

—Net Effect author Ben Worthen

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Jerry Jellison

[LEADERSHIP]

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Why We Need You

The relationship between *CIO* and our readers is just beginning to get real interesting

The other day I was chatting with Patricia Seybold, CEO of the eponymous Seybold Group and author of the new book *Outside Innovation* (to read our review, go to www.cio.com/101506), and she stressed how the smart enterprise is figuring out not only how to use the Web to get closer to customers but how to use it to involve them in the design of products and even processes. Customers today, Seybold says, expect to influence the relationship between buyer and seller and are willing to pitch in to make sure that whatever they're consuming—be it a product or a service or a publication (like, say, *CIO*)—comes to them in a form and manner that works for them. If the enterprise can't provide that product or service (or publication) in the flavor the customer wants—or worse, if it doesn't *know* what flavor the customer wants—that enterprise is out of luck and, pretty soon, out of business.

In the media world, involving readers and viewers in the creation of the product has enabled almost-instant access to some incredibly compelling content at some amazing economies of scale. "Citizen journalists," for example, armed with digital cameras, are now filing on-the-spot news reports from the sites of natural disasters—and from the hometown soccer game.

Here at *CIO*, we continue to explore new ways to leverage our readers' considerable expertise and invite them into our editorial process. After all, our readers represent the best IT minds of our generation. So you will see more of your own voice and expertise on our website and in print, while you continue to benefit from top-flight journalism done by professionals skilled in collecting, assembling, analyzing and presenting information in a manner both useful and entertaining. Case in point: "Cheap Frills," Page 60, by Senior Editor Stephanie Overby.

Overby's story is a classic deep dive narrative into the startup of Virgin America, a new airline attempting to develop a fresh model for success in a famously troubled industry. She tells the story of Virgin's creation, introduces us to its cast of executive characters (the cost-conscious CIO; the COO who's experienced the industry's turbulent ups and downs for the past 30 years), analyzes industry trends, picks the brains of analysts and reports on the efforts of the competition to keep the new airline grounded. This is good old-fashioned feature writing by a pro who, by speaking with the players, knows the issues, the technology and the key business drivers.

We can't be relevant, we won't be successful, without the active participation of our readers. And the journalistic skills we at *CIO* bring to the table will make that relationship work.

Or, as Bogey says to Claude Rains at the end of *Casablanca*, "Louie, I think this is the beginning of a beautiful friendship."

A handwritten signature of David Rosenbaum in black ink.

David Rosenbaum, Managing Editor
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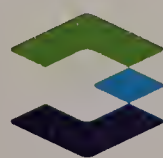
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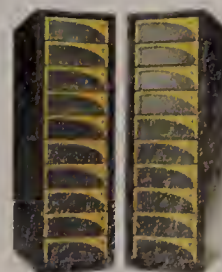
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FROM THE PUBLISHER

Walk the Talk

CIOs talk enough about the value of IT, but their message doesn't seem to be getting through



CIOs may claim they talk the value of IT talk, but they're certainly not walking the walk. In fact, most CIOs seem to be failing badly at convincing top management that IT can truly transform a business.

Right now, the U.S. Department of Commerce reports that corporate profits grew at double-digit rates for the 16th consecutive quarter. You have to go back half a century to find that many consecutive double-digit profit growth quarters.

Three-plus years of strong profit growth should be good news for CIOs and their budgets. But it hasn't been. Gartner recently issued an ominous report forecasting that technology investments will lag behind top-line growth for the next five years.

So why is tech investment limping along at rates that are half of profit growth?
I put the blame squarely on the CIO.

For three years, CIOs have reported in our "State of the CIO" surveys (for all the data, go to www.cio.com/state) that the focus of their IT investment strategy is to enable business growth and innovation. They claim that their top management priority is the alignment of business and technology strategies. Moreover, topping their list of their most important professional skills—the key to their success—is the ability to communicate with CEOs and line-of-business executives.

So why isn't the rate of investment in IT paralleling the rate of profit growth?

It seems apparent that while CIOs may be communicating with their business colleagues, they aren't convincing them of the value of investing in IT.

So, what can they do?

One modest suggestion: Send me an e-mail and I will send you (from the CIO Executive Council) the definitive work on what constitutes value in IT. The 449 worldwide members of the Council, all CIOs, have built what they call the IT Value Matrix, which is a road map to defining IT value.

This road map will help you walk the communication walk.

Gary Beach, Publisher
gbeach@cio.com



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trendlines

EDITED BY LAURIANNE McLAUGHLIN

NEW * HOT * UNEXPECTED

Voting Machines Cause Landslide of Problems

ELECTIONS If this past summer's primary elections are any indication, Nov. 7 could be a frustrating, if not scandalous, election day for the estimated 80 million to 90 million Americans who will vote.

Volunteers manning voting precincts nationwide reported dozens of problems with e-voting machines, about two-thirds of which are optical scan models (voters fill in a bubble on a paper ballot that is then scanned by a computer) or touch-screen computers.

During the spring primaries in Council Bluffs, Iowa, candidates' names did not align with the correct bubble on the optical form, and votes were incorrectly assigned. In Montgomery County, Md., during September primaries, the board of elections failed to include 13,000 access cards in the packet of voting materials each precinct receives, leaving voters to wait many hours to vote. Problems such as these—as well as imagined ones—have caused lawsuits to be filed in nine states. Expect more, experts say. As many as 80 percent of voters nationwide are expected to use an e-voting machine this fall, up from 68 percent in the 2004 November elections, according to the Elections Data Services.

Four years after a federal law made billions of dollars available for new e-voting machines, numerous studies released this year continue to find security flaws in the machines. In September, Princeton

Continued on Page 18



HP Lessons Learned: Be a Good Board Member

BOARD BEHAVIOR

You may not need an ethicist to explain the implications of pretexting. But as the Hewlett-Packard scandal shows, being a board member today requires more than gut instinct. Stand out for good reason, with this advice from ethics experts and CIOs who serve on boards.

DO dust off your Descartes texts. "You can have all the ethics in the world without having a firm grasp of what to do in a complex situation,"

says Tom Donaldson, business ethics professor at The University of Pennsylvania's Wharton School. Consider a business ethics course.

DON'T shy away from confrontation. "If there's not a little bit of creative tension between board members and the CEO, the board isn't doing its job," Donaldson says.

DO approach boards as a businessperson, not a techie. "You don't want to step onto a board and be the tech guy or gal. You want to be a

businessperson who helps the business through critical decisions and just happens to have technical expertise," says Rob Carter, executive VP and CIO of FedEx and a board member for Saks.

DON'T try to run the company. "The role of a board member is to challenge, think, ask questions, analyze and advise. Be very aware of the line between adviser and doer," says Ed Kamins, corporate senior VP and former CIO of Avnet, as well as a

board member of InterDigital Communications and Calence.

DO bring unique perspective to the table. "A CIO brings technical knowledge, but also a way to think about things in an analytical way," Kamins says.

DON'T repeatedly say, "This is how we do it at...." What works for one company won't work everywhere, says Jeff Balagna, CIO for Carlson Companies and a board member of the Tennant Company and Minnesota Public Radio.

—Lauren Capotosto

IS MYSPACE THE NEXT KILLER APP IN POLITICS?

SOCIAL NETWORKS

The reach of MySpace and YouTube now extends to the White House: Social network sites are reshaping how candidates run campaigns, said experts at a recent conference on social networking, hosted by the George Washington University Institute for Politics, Democracy & the Internet.

MySpace, blogs, YouTube and other social-networking sites are making the controlled, broadcast-style way of distributing political information obsolete, says Henry Copeland, president and founder of Blogads, an advertising service for blogs. "The people we're dealing with today are no longer 'consumers,' they're participants."

Politicians who ignore the impact of blogs and other social-networking sites miss a huge number of potential voters, says Tom Gerace, founder and CEO of Gather.com.

MySpace, which boasts 108 million member profiles, has more than 7,400 discussion groups related to politics, plus pages created by or for candidates like Arizona Republican John McCain and Nevada Democrat Wesley Clark.

Of course, MySpace also has user groups devoted to the legalization of marijuana and the claim that Republicans are better in bed. This kind of content makes some people question whether social networking's growing influence on campaigns is such a good thing.

"It's healthy for democracy for more voices to be heard," says Chuck DeFeo, general manager of Townhall.com. "People get more involved in politics."

Politicians also face a new reality due to the rise of social networking and blogging: "Citizen journalists" armed with video cameras or a blog platform can show up anywhere.

—Grant Gross

Voting Machines

Continued from Page 17

University professor Edward Felten released a study of the Diebold AccuVote-TS voting machine, showing that his students, working in a lab setting, could install malicious code, modify votes and the logs tracking those votes, and spread viruses from machine to machine. Diebold says that model, two generations old, has been replaced by newer ones, but Felten remains a voting machine security skeptic.

The Brennan Center for Justice released a report in July that found 120 security threats, including states failing to install intrusion detection software. "Today the state of electronic voting security is not good," said David Wagner, a computer scientist at the University of California, Berkeley, at a congressional hearing on the subject this summer. "With this technology, we cannot be certain that our elections have not been corrupted."

The best way to double-check whether the machines tally votes correctly is for voters to also fill out a paper ballot—and for states to conduct a manual audit, Wagner testified. Only 13 states do so, however. Yet even paper ballots have proven unreliable, as Cuyahoga County, Ohio, found out this summer when it hired the Election Science Institute to study its May 2 primary election. ESI found about 10 percent of the paper ballots were "either destroyed, blank, illegible, missing, taped together or otherwise compromised."

This underscores the biggest problem for e-voting, says Doug Jones, a computer science professor at the University of Iowa who has studied e-voting machines: Counties, which manage most of the elections nationwide, do not have the necessary managerial expertise. For example, states and counties rely on inadequate security documents written by the voting machine manufacturers.

Vendors also need to greatly improve design, given how rarely voters and workers touch machines, according to Wagner.

"You have to design the machines so things are so self-evident that learning is not necessary," Jones says. "Until then, you can expect a lot of problems and a lot of controversy."

—Allan Holmes

Where the M&As Are

BUYOUTS M&A activity continues to spike: Mergers, not IPOs, remain the primary exit strategy for most private companies. Furthermore, excess capital within the leveraged buyout funds is fueling merger and acquisition activity, says Douglas Brockway, managing director of Innovation Advisors, a Massachusetts-based investment banking firm.

M&A DEALS, UNITED STATES, FIRST HALF 2006:

Computer software, supplies and services	791
Brokerage, investment and management consulting	356
Broadcasting, leisure and entertainment	278
Wholesale and distribution	234

SOURCE: FactSet Mergerstat



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When It's Time for a Sit-Down

MANAGEMENT REPORT Business technology is the new information technology, says Forrester Research's VP and Research Director Laurie M. Orlov. The new term represents IT's future, according to her recent report "Business Technology: Do Business Execs Get IT?" "IT organizations are becoming more focused on the business of the firm, and not necessarily the technology or IT of it," Orlov says. But in order for IT and business to align, "all execs must be able to pass an IT knowledge test," writes Orlov.

Orlov recommends CIOs ask themselves five questions about their fellow CXOs (see the online version of this article for the whole quiz at www.cio.com/110106). For example, CIOs need to know whether executives are measuring and reporting on the impact of BT investments. "If the business execs are scoring below 50 percent on these, the CIO needs to do something," says Orlov. "It could mean that your IT house is not in order, but it could also mean taking the scorecard to the boss for a heart to heart."

If it's the latter, Orlov has some advice for CIOs preparing for a sit-down with other business execs.

1. Know what type of IT group you are and what the business units expect from you. "If you think you are one type of organization and the business expects something different from you, then you've got a mismatch, and IT is going to have to realign itself," says Orlov. For example, some units may expect IT to provide reliable infrastructure at a low cost, while others expect IT to drive revenue-generating ideas.

2. Advocate process change. IT often waits for business groups to ask when they need something done, Orlov says. But because IT sees across various business divisions, it needs to be more proactive.

3. Speak in business terms and avoid the acronyms. "Talk to the business units about how IT is going to affect profitability, revenue and service to customers," she says.

—Katherine Walsh



Airplane Flight Decks Go Paperless

AVIATION TECHNOLOGY Anyone who's visited a commercial airplane cockpit will tell you there's no lack of electronics on the flight deck. But there's usually a whole lot of paper in there, too. That 77-pound black briefcase you saw the pilot lug up the gangway didn't contain the copy of *War and Peace* he intends to read over Omaha: It's stuffed with navigational charts, weight and balance data, and operating manuals.

Some airlines are replacing many of these paper-based processes with electronic flight bag (EFB) technology. JetBlue made a splash in 2000 when it equipped its pilots and first officers with laptops to access electronic flight manuals and make preflight load and balance calculations that it said would not only reduce the airline's printing costs but also save 4,800 man-hours a year.

"The typical airline is operating hundreds, if not thousands, of flights a day. That's a lot of paper, so there's a definite cost and environmental benefit to the technology," says Henry Harteveltdt, vice president of travel research for Forrester. "There's also immediacy," so pilots always have updated data, he says. FedEx has used EFBs since 1991, but most commercial airlines couldn't justify the technology due to implementation costs and communications infrastructure challenges. Today, more passenger airlines are getting on board.

JetBlue's laptops, considered Class 1 EFBs by the Federal Aviation Administration, are just like yours—they have to be stowed at times. Virgin America (see "Cheap Frills," Page 60) plans to take off next year with Class 2 EFBs, which mount in the cockpit of its Airbus A320s, for use at any altitude. The Class 2 option will be less costly long-term than equipping every pilot with his own laptop, says Virgin America's VP and chief pilot, Joe Houghton, and will let pilots access navigational charts in flight.

The ultimate goal is a nearly paperless flight deck except for one checklist. Houghton says that will increase efficiency, reduce costs and raise the quality of life for pilots—they'll have a free hand to carry a change of clothes for dinner or a good book.

—Stephanie Overby



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All Roads Lead to Rome

WIRELESS In 1748, Gianbattista Nolli redefined what modern mapmaking looked like: He offered the first iconographic view of Rome that detailed the dense, urban streets and public spaces, as well as the interiors of buildings. Now more than 250 years later, Carlo Ratti has set out to revolutionize cartography again—this time with the help of cell phones, taxis and buses, and Google maps.

Called Real Time Rome, the project paints a new picture of the ancient city: On seven large flexible glass screens and in fiery, fluorescent colors, Ratti and his team are able to show traffic congestion, the routes of the city's taxis and buses, and where city dwellers are congregating and moving—all with real-time wireless data. "This new type of data provides an

The Real Time Rome project maps the city's traffic and crowd patterns using wireless data collected from vehicles and cell phones.

understanding of the city that we couldn't have had a few years ago," says Ratti, director of MIT's Senseable City Laboratory, which studies the impact of new technologies on cities. Wireless data, including that from GPS devices located on taxis and buses and aggregated, anonymous cell phone data from Telecom Italia, fuel databases that Ratti's team uses to create the topographies.

The stunning maps have been on display at the Venice Biennale art exhibition since September. (To see them, go to the online version of this story at www.cio.com/110106.) During a Madonna concert this past summer, Ratti says he saw some of the "most beautiful patterns" on the screens. "You could see the city pulsating toward where the concert was," he says, "and how the infrastructure is really being used."

The project has both simple and grand goals. Simple, because Ratti sees benefits for citizens who want to avoid traffic jams and for emergency responders who need to see the most efficient routes. Grand, because "we can change the way we design cities," Ratti says. "It's a way to streamline movement in the city."

To that end, Ratti is launching the Senseable City Consortium, an R&D initiative to bring together public administrators, network operators, and hardware and software companies to design smarter urban environments. "Cities, in the past, were built out of concrete," he says. "Tomorrow, cities will be built out of silicon."

—Thomas Wailgum

Providence Looks Beyond Wi-Fi

MESH NETWORKS Many cities turn to wireless to help residents and visitors get online, but Providence, R.I., is unwiring itself in a totally different way. The New England port city of 178,000 looked at the needs of its public safety agencies and chose a proprietary mesh network system that avoids some pitfalls of standard Wi-Fi, such as security and interference, according to city CIO Charles Hewitt.

Providence's Motorola Mesh Network Architecture

system uses the same unlicensed frequencies as Wi-Fi, but isn't open to the public at all. To use it, you need special gear made by Motorola. Deployment of the \$2.3 million network, which the city owns and operates, began in August and should be done by year's end, Hewitt says.

Among the advantages for safety officials, the network can route packets around a failed access point, an area of interference or a congestion point, Hewitt says. It also works in vehicles, to let fire-

fighters view building floor plans and police officers see suspects' mug shots while on the way to a call. "What they would see out in the car would be virtually the same as what they have at their desk," Hewitt says.

The system uses technology that Motorola got through buying Mesh Networks in 2004. Mesh built upon work by the U.S. Defense Department on devices that could create ad hoc networks among themselves on the battlefield, says Rick

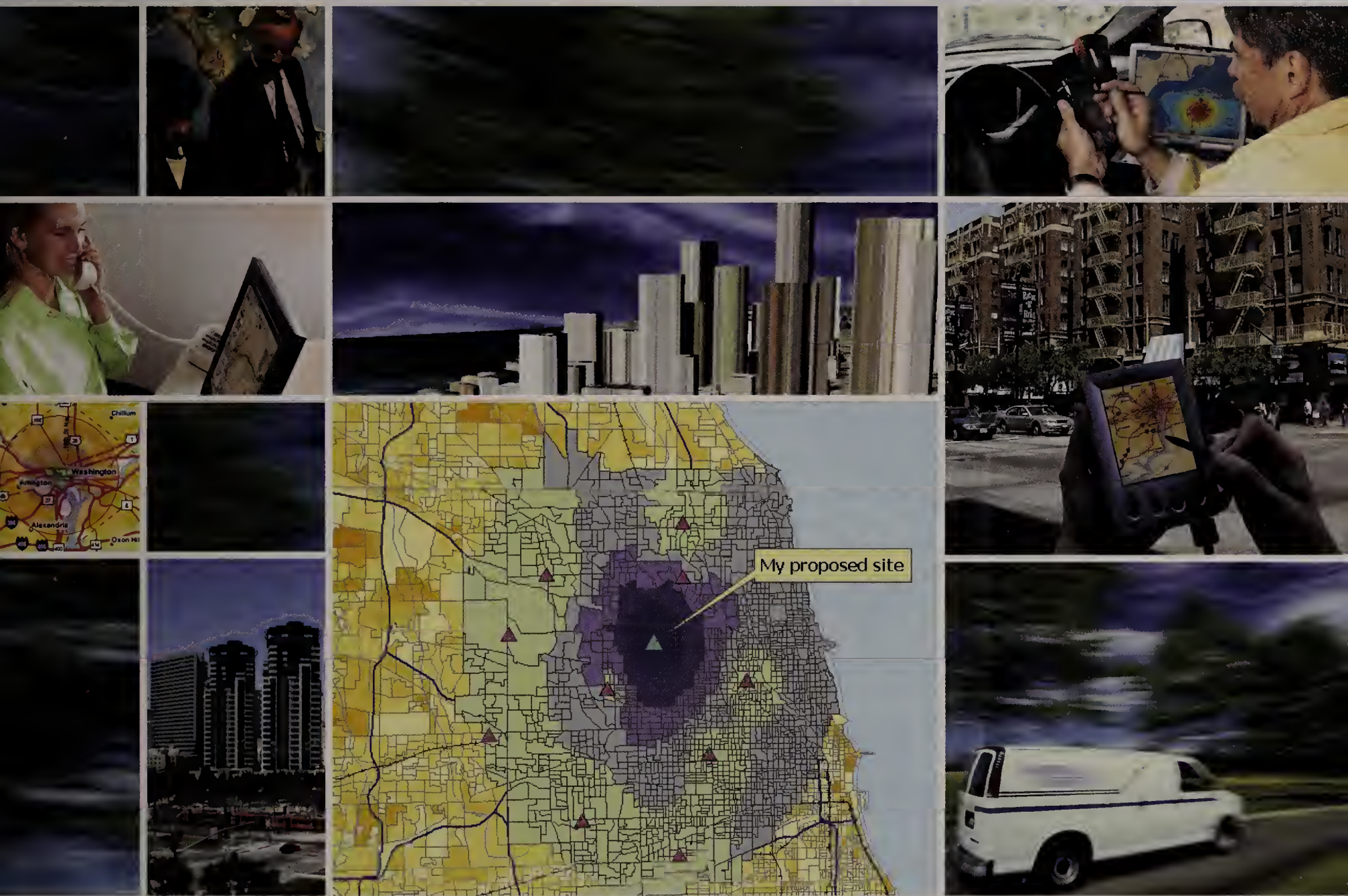
Rotondo, a marketing director at Motorola.

Proprietary mesh networks can pose a challenge at a bad time, according to Craig Settles, a municipal wireless researcher. In an emergency, crews from neighboring communities won't be able to get on the city's network, he says.

However, as long as the Motorola network is connected to another IP network, any agency with an IP-based network could communicate through that network, Hewitt says.

—Stephen Lawson

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Blogs Help Win the IT Talent Search

TALENT Finding the best IT talent continues to challenge CIOs. But some are tapping into a trick that external HR recruiters have used for a while now: joblogging. By scanning blogs and social-networking tools, CIOs and their internal recruiters sometimes strike gold.

"This allows us to start a conversation about what opportunities we have here," says John Leech, manager of recruitment for services at FedEx.

Leech says FedEx IT launched the search-via-blogs strategy about a year ago. While he won't specify how many new hires have

resulted, he calls the effort "very successful." One of the benefits of using blogs and social-networking sites such as LinkedIn.com to recruit is being able to see candidates' current work and interests.

Google recently unveiled another innovative hiring tactic. It posted a billboard in Cambridge, Mass., and Silicon Valley, reading: {first 10-digit prime found in consecutive digits of e}.com. Google's name did not appear on the board. If a person solved the problem and plugged the answer into a browser, he was taken to a Google site where he could submit a résumé.

Leech says FedEx plans



to use a contest too, asking applicants to solve problems in logistics, programming and systems. Meanwhile, FedEx will be watching the blogs.

"Recruiting is a timing game," says Leech. "When the boss is yelling at them, when they should have been promoted, that's when we want to make contact with them."

His advice for other CIOs: "Create a strong recruiting brand that is easy to communicate. Join popular online communities and start connecting with people that have the talent. Remember, you are only six people away from phenomenal IT talent. The trick is how you connect the dots."

—C.G. Lynch

Dark Side Shows Upon More CIO Résumés

ON THE MOVE Taking a non-CIO job with a tech company was once considered moving over to the dark side. But today, the move to a vendor firm in a sales, customer service, business development or operations role is seen as a stepping-stone for CIOs, recruiters say. "It can be a career rounding experience," says Eric Sigurdson, of executive recruiting firm Russell Reynolds.

More IT execs now seek these roles as a way to broaden their skill sets, he says. Last summer, **Margaret Thomas** left her post as CIO of Newton-Wellesley Hospital in Massachusetts to join



Margaret Thomas



Dianah Neff

software and services firm Sentillion, based in Andover, Mass., as vice president of services. Thomas sought a new challenge.

"I was looking to stretch beyond the skills I had. I wanted to do some strategic planning and have an impact on a company's direction. If I had stayed, that [strategy] would have been determined by others," she says.

Among other CIOs who've recently joined vendor firms:

■ **Joseph Kava** left Applied Materials to join IT outsourcing provider Raging-Wire Enterprise Solutions as vice president of operations.

■ **Christopher McDaniel** left Mutual

Service for the role of COO at Blue Frog Solutions software.

■ **Linda Reino**, formerly of Universal Health Services, joined electronic medical transcription provider MedQuist as COO.

■ **Dianah Neff**, the former CIO of the city of Philadelphia, joined Civitium as a senior partner.

Thomas doesn't think her move to Sentillion will prevent her from returning to a CIO role in the future, if she so chooses. In fact, she thinks the experience will be an asset. "Were I to go back into the CIO role, I'd have a lot more knowledge of how other CIOs are deploying different solutions. This role at Sentillion gives me exposure to other best practices," she says.

—Meridith Levinson

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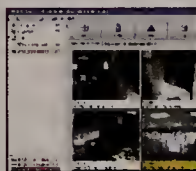
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CIO EXECUTIVE VIEWPOINT

Commonsense Consolidation

David Thompson**Executive Vice President and CIO, Symantec Corp.**

Server consolidation is a proven money-saver. But the benefits go far beyond pure cost savings, right to the heart of the real business value that an efficient and agile IT organization can provide to the enterprise. With experience as a CIO at some of the most technology-savvy companies in the world, David Thompson is a practical authority on consolidation.

Why does it seem so many data center operations are ripe for consolidation efforts today?

Typically there is a lot of underutilized capacity out there. Some organizations purchased excess capacity in anticipation of growth that didn't occur. Applications are more efficient today, so they don't require as much capacity. It is not surprising to see server utilization in the 10 percent range or even lower. That gets expensive to maintain, given the return on server usage.

From your experience, what are the main benefits to be gained from consolidation?

There are two main benefits. The first is the agility an IT organization gains, the ability to respond more quickly to business changes even with constrained headcount and funding challenges.

to build the new environments and to transition the applications. But the main thing is that you have to "feather in" consolidation efforts into the business calendar, because you may have to implement a short service outage during the transition. We have been able to do this at Symantec with very little disruption by leveraging our own technology during the consolidation.

Are there other benefits of consolidation?

Absolutely, because through consolidation you end up standardizing on fewer specific technologies, so IT training costs drop and it is generally easier to hire staff because you need a more targeted set of skills. Also, with the software tools available today, you'll be able to stream-line and automate many processes that previously required a lot of manual tasks.

"Through consolidation you end up standardizing on fewer specific technologies, so IT training costs drop and it is generally easier to hire staff because you need a more targeted set of skills."

Consolidation reduces complexity and enables greater agility. The second benefit is the cost savings gained by consolidating assets, driving up the utilization of assets and reducing the administrative overhead required to maintain the environment.

What's your estimate of the ROI of consolidation efforts?

Realistically I'd say 20-24 months. I'd like to see it earlier, but it takes time

Is there a relationship between consolidation and virtualization efforts?

In the past they were done separately, but we are finding now that virtualization is becoming an enabler of consolidation. With virtualization you build an infrastructure that allows you to build out new consolidated environments much more rapidly. Plus, IT skills for virtualization are similar to those needed for consolidation efforts.

**How do you know if your environment is a good candidate for consolidation?**

Many CIOs have begun asking the tough questions around server utilization rates. They should gather all those metrics across their entire portfolio of assets and analyze them to get a complete picture of overall utilization. What we see often is that they are actually using a very small percentage of their total infrastructure, and that's a clear signal they can benefit from consolidation. Computing technology today is such that servers can handle very high levels of utilization while delivering very high levels of availability and uptime. We have the software tools to make that happen.

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FROM INCEPTION TO IMPLEMENTATION—I.T. THAT MATTERS

Edited by Laurianne McLaughlin
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Do-it-yourself integration and support for open source will cost you plenty. So will consultants. But a new, less expensive approach has emerged.

The New Open Sourcing

BY GALEN GRUMAN

OPEN SOURCE | Open source has many allures: no license costs, a wide range of support venues and the ability to work directly with code for customization or quick repairs. But it can create IT headaches, too: The mantra of open source has been “release early and often,” which means IT managers using a disparate group of open-source apps face frequent updates and patches, and must craft rules about how and when to apply them. Most enterprises soon find that with the do-it-yourself approach, maintenance and integration costs equal—and sometimes exceed—the maintenance cost of commercial software, due to the in-house resources needed to track, test, and apply patches and updates. The other option, using professional services firms to do that work, costs at least as much.

But a new, potentially less expensive approach is emerging—a certified, preintegrated suite of open-source components from one vendor, which stays updated and integrated via periodic suite releases.

This option could make open-source adoption easier, for example, for smaller enterprises that don’t have the staff or services dollars to support the traditional open-source integration and maintenance approaches but want to use proven open-source technologies like Linux, EnterpriseDB, Postfix, Tomcat and Apache more broadly.

“By creating a standard set of services, providers create cost savings and improved

quality," says Julie Giera, a vice president at Forrester Research.

For instance, hardware-and-consulting vendor Unisys recently announced its Open and Secure Integrated Solutions (Oasis) suite—a group of open-source tools optimized for large enterprise customers, with a service-level agreement (SLA) that remains in effect as long as the customer doesn't modify the software. The established trio of automated open-source support vendors—OpenLogic, SourceLabs and SpikeSource—now offer preintegrated suites, or stacks, of open-source components in addition to their previous offerings (management tools that track and patch open-source software across an enterprise). And Red Hat sells a release of the JBoss application server with other middleware components integrated.

However, the preintegrated approach

large ones, simply because smaller enterprises have fewer IT resources. "When it fits their IT needs, the suite approach makes sense for small and medium businesses," says Terry Retter, a director at the PricewaterhouseCoopers Technology Center, an advisory group.

California construction firm Rudolph and Sletten is a case in point. "I'm in a mid-market company, so I don't have the resources to deal with a do-it-yourself stack," says CIO Sam Lamonica. That's why he relies on his operating system and application vendors to provide and maintain integrated suites. For example, Lamonica uses the IT GroundWorks management suite, which includes Nagios, Linux and JBoss. In this case, a commercial vendor includes open-source components as part of its product. That's fine with Lamonica, since the vendor worries

In reality, preintegrated suites make the most sense if your open-source software is very stable, used in an "install and forget" approach.

will not suit every IT department. Many CIOs lack enthusiasm for it, due to issues like vendor lock-in and lack of flexibility—and you should weigh these factors as you consider the fit for your organization.

Who Wants Preintegrated Suites?

Theoretically, the preintegrated approach should appeal to enterprises of all types and sizes. But in reality, preintegrated suites make the most sense if your open-source software is very stable, used in an "install and forget" approach, with just occasional upgrades as you refresh your technology platforms. In other words, with preintegration you choose ease over flexibility.

Also, the preintegrated approach appeals more to smaller enterprises than

about integration. Plus he suspects it keeps the price down.

CIOs like Lamonica at smaller enterprises tend to like the idea of preintegration when it's applied to specific vertical application areas, such as CRM or Web management, but dislike the idea of preintegrated middleware suites into which they must then integrate other applications.

At larger enterprises with more resources, CIOs might be more apt to pick multiple open-source integration and maintenance approaches—balancing the needs for vendor and application flexibility against the costs of maintaining that flexibility. At insurer AIG, for example, "all of our decisions are value-driven," says Jon Stumpf, senior vice president of engineering at the insurer's IT subsidiary, AIG Technologies. Sometimes, the prein-

TOOLBOX

Open-Source Suites

Just what will you find in the new crop of precertified suites? Here's a sampling of options.

Red Hat: Offers the JBoss Enterprise Middleware Suite, with the JBoss application server, plus tools for portal management, business process rules management, caching, distributed transaction management, messaging and development.

SourceLabs: Offers the SASH stack for Java middleware, comprising Spring Framework for business logic and component integration, Apache Axis for Web services, Apache Struts for Web application development, and Hibernate for object-relational mapping and data abstraction.

SpikeSource: Offers three preintegrated middleware stacks: the LAMP Stack (composed of Linux, Apache, MySQL and a choice of Perl or PHP) for websites with dynamic database-driven content, the Tomcat-based Servlet Stack for dynamic websites written using Java-based Web technologies, and the JBoss-based J2EE Stack for Web applications using Java Servlets and Enterprise JavaBeans.

Unisys: Offers three Open and Secure Integrated Solutions (Oasis) suites—one for application servers and two for open-source databases—using technologies such as the JBoss application server, and the MySQL or PostgreSQL databases. In the application server, Unisys includes its own Java virtual machine, designed for high-transaction scalable environments, and its own application-level security software. —G.G.



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egrated approach will have the best value, but sometimes it will not, he notes.

Large companies with heterogeneous platforms prefer the flexibility of a horizontal infrastructure on which they run various applications and data systems, and are willing to pay for the in-house or outside resources needed to integrate and maintain them, says Stumpf. CIOs at such large enterprises may see value in preintegrated horizontal suites, if they provide more value than other options and don't hinder needed flexibility, he says.

The University of Pennsylvania follows a similar "what fits best" approach, says Robin Beck, the university's vice president for information systems and computing. "I'd want a [preintegrated] stack where it makes sense," she says. Beck is perfectly happy that companies like IBM and Oracle include the open-source Apache Web server in many of their products, taking on the responsibility for ensuring that Apache remains integrated with their software.

One other possible appeal of the pre-certified suite approach: You might want to choose a suite that's been customized

Lock-In and Support Concerns

Despite the promised benefits of preintegrated stacks, some CIOs have strong reservations about adopting them: Besides the lack of application flexibility, fears include vendor-lock-in and inadequate support.

After all, one reason people choose open source is to take advantage of a dynamic community that quickly adopts innovation. A preintegrated suite that changes on the vendor's schedule can eliminate that dynamism.

As AIG's Stumpf notes, "If the suite is 'take it or leave it,' unless it exactly matches my assessment of what I need, I'll pass on it. If the stack is rigid, it's no different than going all-IBM or all-Microsoft," he says.

Plus, many open-source components tend to be run with other components in de facto suites, which the open-source community tests and maintains, Beck says. That lessens the need for vendor-managed suites, at least for common combinations of open-source software, she says.

"It will be hard for an integrator to provide a value above and beyond what the open-source community will do,"

"If the suite is 'take it or leave it,' unless it exactly matches my assessment of what I need, I'll pass on it."

—Jon Stumpf, senior VP of engineering, AIG Technologies

by the vendor when you don't have the resources or inclination to customize it yourself. That's why analysts think this concept makes sense for smaller companies. In the future, they envision vendors providing customized suites for a swatch of users—the same customization could work for all independent insurance agencies, for example, or nonchain booksellers. (Right now, such users have to use standard open-source components without specific tweaks for their business processes, pay consultants to do customization work, or buy a commercial product designed for that specific industry.)

says David Rasch, CTO of IntelliContact, which provides e-mail marketing, RSS feed and blog management software to small businesses.

Even where de facto suites don't exist, Rasch doubts that third parties can put together a broad enough range of preintegrated suites to meet different customers' needs. "The amount of what people want integrated varies widely," he says.

But concerns run deeper than application choices. "For me, an offering like Unisys's Oasis is backsliding," says Rasch, because customers aren't supposed to update or modify it, in order to retain their

70% of enterprises say that having a single open-source vendor is "not important" or "somewhat important." Just 7 percent say it is very important.

SOURCE: The 451 Group survey of 70 enterprises regarding open source

service-level agreement.

(Customers who do such modifications would likely need additional Unisys professional services, says Ali Shadman, Unisys vice president and general manager for open-source solutions, systems and technology unit.)

To address the need for flexibility, a CIO could treat the suite as a starting point, an initially integrated collection of applications that you may choose to maintain internally or hire external resources to maintain. But this approach does have some level of vendor dependence, says Raven Zachary, senior analyst and head of the open-source practice at research firm The 451 Group.

The likely need for services spending is not lost on Hewlett-Packard, OpenLogic, SourceLabs, SpikeSource and Unisys, as well as others, Zachary says. "They see that the stack is not the business, but IT consulting is," he says.

This slippery slope into dependence on consulting services particularly scares smaller firms with limited IT budgets.

"We hear horror stories about being locked into a vendor and having their technologies forced on you," says Jason Miller,

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bioinformatics department software manager at the Institute for Genomic Research. "A 300-person company can manage its IT itself," he says, noting that he brings in consultants only when he has a time crunch.

But these fears of vendor lock-in and consulting run amok are not limited to small companies: "I don't want the open-source environment to become a mirror image of the proprietary environment," says the University of Pennsylvania's Beck.

A final worry: Will having a single support entity actually simplify IT efforts? IntelliContact's Rasch understands the one vendor support argument but doubts most providers' ability to live up to the accountability he needs.

And Rudolph and Sletten's Lamonica is skeptical that enough providers would support companies of his size in the first place. "There aren't many third-party providers who are willing to or capable of providing open-source solutions to us," he says, noting most services firms aimed at the mid-market are certified by Microsoft or Cisco Systems "and don't want to rock that boat."

Better Options Coming Soon?

CIOs considering precertified suites right now face a big contradiction: Although preintegrated suites make the most sense for smaller enterprises willing to trade off flexibility for lower maintenance costs, vendors so far have aimed the offerings at the big guys. That mismatch could keep these suites off the table for many CIOs, for now.

For example, Unisys targets its Oasis offerings to large enterprise customers such as Fortune 500 financial services companies. One reason: It costs too much to sell to smaller companies given what they're likely to spend, says Unisys's Shadman.

And although OpenLogic offers sev-

More on Precertified Suites

Go to the online version of this story for a link to **THE 451 GROUP REPORT, "STACK AND DELIVER,"** at www.cio.com/110106.

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Find Your Suite Spot

WHEN EVALUATING preintegrated open-source suites, analysts recommend that CIOs keep the following caveats in mind:

Focus on software you don't intend to change much. Integration maintained by outsiders proves most effective when your need for change is rare. Otherwise, you'll either lose the integration or end up paying your staff or an outsourcer to keep reintegrating.

Understand what value is really added. Many open-source components are commonly used together, so you can find de facto suites integrated from a variety of sources, at little or no cost. A suite's cost—both up front and for support—should reflect its unique value, such as optimizations for your industry or better performance that benefits your operations.

Gauge what must be specialized. Essentially, a custom open-source suite is no different from custom commercial software. The more specialized the offering, the more you are tied in to its provider for support and services—so be sure the customization is worth losing broad support from the open-source community.

—G.G.

eral preconfigured stacks, it concentrates on large companies, notes Kim Wein, vice president of marketing.

After surveying customers, Hewlett-Packard says it found little customer demand for preintegrated suites, so it offers "blueprints," standardized do-it-yourself guides for integrating the open-source components it provides, as well as full-blown custom integration services. HP makes its consulting services available to smaller companies through resellers. But the cost of the software support is the same as for a large company, notes Jeffrey Wade, worldwide marketing manager for HP's open-source and Linux organization.

Looking ahead, analysts expect additional open-source suites aimed at the mid-market to emerge, bringing in more appropriate choices for CIOs.

Application and operating system vendors will ultimately drive open-source suites, rather than consulting firms or middleware-oriented vendors like Spike-Source and OpenLogic, the 451 Group's Zachary predicts. Companies like Red Hat and MySQL have years of experience supporting their open-source offerings, which interact with many other tools, so

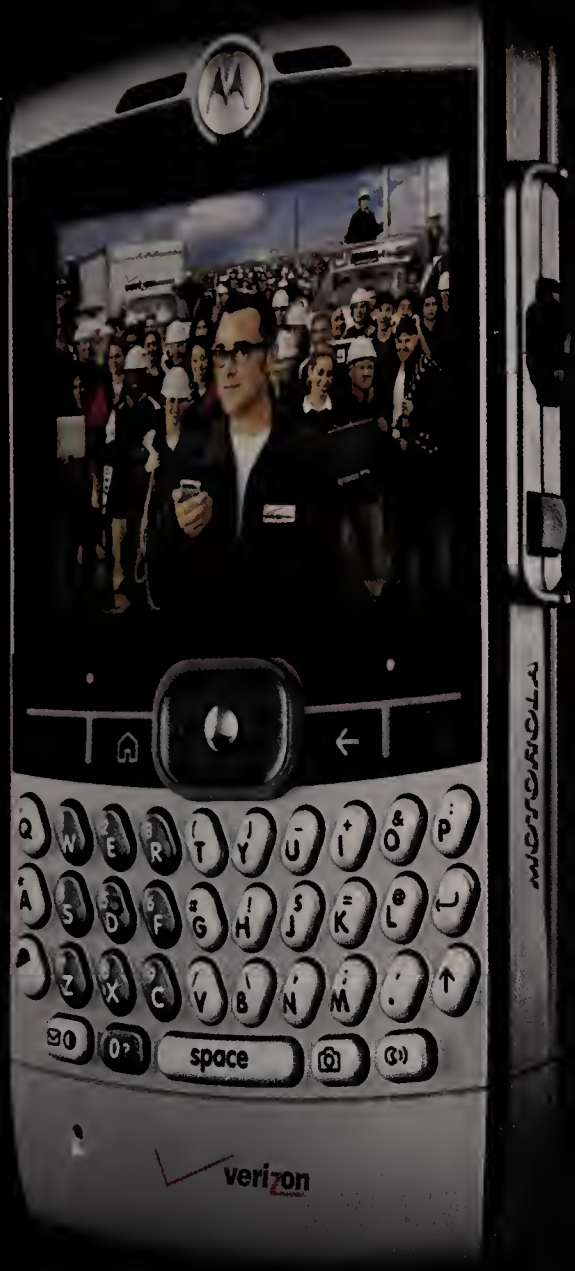
they'd be natural suite providers, says Judith Hurwitz, president of the Hurwitz & Associates consultancy.

It makes sense for application vendors—such as database, CRM and accounting app makers—to incorporate open source into their wares, delivering preintegrated suites on CD or even preinstalled on a server, Zachary says. After all, he says, long before open source, vendors have done that in the mid-market with proprietary software for everything from managing dentists' offices to handling auto parts retailers' accounting.

Meanwhile, CIOs should define their needs before evaluating today's suites. Large enterprises can ask if the new open-source suites fill key application needs at less cost than the do-it-yourself or externally customized approaches. Encourage vendors to meet those key needs: By shaping the demand, CIOs have a better shot at getting truly useful integrated suites, AIG's Stumpf says. **CIO**

Freelance writer Galen Gruman can be reached at ggruman@zangogroup.com. Send your comments to Technology Editor Laurianne McLaughlin at lmclaughlin@cxo.com.

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Preludes to a Customer Kiss

Getting closer to customers seems like a no-brainer—but it may not make you any more profitable than you were before. The key is to take it slow.



In January 2005, one of the most resolutely product-oriented companies in the world, semiconductor maker Intel, announced it was reorganizing itself around its customers. No longer would the firm simply announce new chips and expect customers to adopt them. Instead, it would focus on the bundling of processes, ancillary chips and software into platforms tailored to five customer segments.

Intel is far from alone. Organizations have been steadily evolving toward closer alignment with customers. But the changes required by this evolution are disruptive in the short run and add coordination costs in the long run. These countervailing pressures are a warning to CIOs that while closer customer alignment may be correct, it is not sufficient to support a wholesale shift in strategy and organizational structure. The appropriate structure is guided as much by implementation realities as by the strategic imperative to get closer to the customer.

So is it worth doing? The findings from our study of 347 midsize to large firms were mixed. Among those companies that made the shift, accountability for customer relationships sharply improved and information sharing was better. Firms organized according to customer segments were also easier to do business with and better at dealing with problems and queries. But these benefits didn't immediately translate into superior financial performance. There was no direct correlation to increased profitability.

Among the companies we studied, we saw four stages in the transition to being customer-focused.

Stage one: product or functional silo. For small or highly focused firms, this simple structure usually suffices. Problems



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arise as competitive pressures, fragmenting customer requirements and proliferating channels create performance-sapping conflict.

Stage two: informal lateral coordination. As customer requirements begin to fragment across functional or product divisions, the company responds by coordinating across independent areas. Product managers may serve informally as bridges across multiple business units. Rotation programs, such as moving salespeople through a stint in marketing, are also common at this stage, as is the development of a companywide CRM system. However, these moves are much more successful when done in tandem with the next stage of evolution.

Stage three: partial alignment via integrating functions. Companies create formal positions for market segment or key account managers—sometimes even entire organizations—that span multiple boundaries in the organization to overcome a functionally partitioned view of the customer. IT systems that span functional boundaries are often part of this transition, creating integration issues for the CIO.

Stage four: fuller structural alignment. Companies at this stage have created powerful, independent units to serve as central coordination points for the company's various independent business units. These units act as the front end, assuming primary responsibility for the customer relationship. This design flourishes when customers want solutions from multiple business units that are customized to their individualized needs. However, product business units often retain the ability to sell directly to customers, which means there must be a strong corporate center to mediate the conflicting demands.

Fidelity Investments' evolution to the front hybrid model began with a strategy that emphasized credible advice and investment solutions tailored to the individual investor's situation. This meant picking the customer segments to nurture and creating dedicated groups to serve each of these segments with personalized guidance and service levels appropriate to the profit potential of the segment members. The product groups continued to develop and manage a broadened array of funds and financial services that could be readily bundled and sold by the front-end customer unit.

From an IT perspective, this kind of structural alignment is very difficult. Inadequate systems are a major source of delay. How can an organization be aligned to its markets if customer data is dispersed, segment profitability can't be estimated and customer defections aren't visible? Indeed, Fidelity Investments

managers estimate that it took more than three years to accomplish 60 percent of their reorganization goals—mainly because of systems constraints.

First Steps to a Customer Embrace

A necessary early step on the path to customer alignment is unified customer information that is filtered through linked databases. When individual product and geographic groups have their own information systems, including ordering and fulfillment, the firm is unable to coordinate its offering. The consolidation of information at the point of customer contact also makes it easier to separate the front-end customer solution units (at stage four) from the back-end product infrastructure.

Good performance metrics systems are also critical to success—they breed cooperation across formerly independent units that all had different goals and rewards. For example,

CIOs can play a critical role in the transition to a market-focused organization by clearly outlining the implementation realities in the time line.

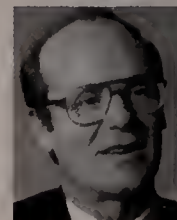
Enterprise Rent-A-Car uses an IT system to rank its 5,000 branches with two customer survey questions, one about the quality of their rental experience and the other about the likelihood that they would rent from the company again. GE Plastics uses systems that track delivery performance so it can reduce variability in delivery date—its number-one customer satisfaction metric.

Mismatched capabilities, fragmented information systems and inadequate execution can all undermine the realignment process. The good news is that these obstacles are familiar and were overcome by the organizations we studied. (Other issues, such as customer resistance to the new model and internal cultural resistance, proved much more intractable among the studied companies.)

Because it takes longer to reorganize the organization than to plan a change in strategy, there is an unrealistic expectation about how quickly the move to a market-focused organization can be accomplished. Those who are successful are able to factor the inevitable challenges into the overall strategy transition plan and don't try to push it faster than the impediments allow. CIOs can play a critical role in success by clearly outlining the implementation realities in the time line—but must also deftly avoid becoming the scapegoat for delays beyond IT's control.

Compared to this challenge, the implementation will probably seem like the easy part. **CIO**

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CIO in the Round

CIOs can push their leadership skills to the next level by using a 360 review to understand what they do well—and to start doing it better



Meet Mr. Average CIO. He is of average height, build and age. He is also, according to his recently completed 360-degree assessment, an average leader. Initially, Mr. Average was disappointed to hear his results. But over time, he became sanguine; after all, what's the point of getting worked up over survey results that are confusing and don't jibe with his strong job performance reviews?

Mr. Average's situation is a common outcome of the 360-review process, in which an individual is evaluated by customers, peers, direct reports, his supervisor and himself. It should be no surprise that when you average the responses of 15 reviewers to 60 or so questions (each testing a different leadership competency), the mathematical process often leads to results that cluster around the norm.

To gain meaningful insights as to his specific leadership strengths and weaknesses, a CIO who has undergone a 360 review must objectively analyze hundreds of feedback points. So it's easy to miss the forest for the trees.

Mr. Average doesn't know it, but there's good reason for him to be concerned about his results; since he doesn't have any competencies rated in the top 10 percent (scores greater than 4.5 on a scale of 5), he's in the *34th percentile* of all leaders. You see, it's not the average score that counts on a 360 review. It's the number of competencies rated in the top 10 percent, according to *The Extraordinary Leader*, by John Zenger and Joseph Folkman.

The good news for Mr. Average (and all of you) is that it takes only five highly rated competencies to be considered a great leader, as long as two other conditions are met. First, the competencies need to be distributed evenly across five leadership

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sectors, defined by Zenger and Folkman as personal capability, character, interpersonal skills, ability to focus on results, and willingness to lead change. Second, Mr. Average cannot have any fatal flaws, which are defined as an inability to learn from mistakes, a lack of core interpersonal skills, openness to new or different ideas, accountability and initiative.

A handful of extraordinary strengths separates great from average leaders. And great leaders outperform average ones on productivity, turnover, customer service and employee commitment. By building on his strengths and eliminating fatal flaws, the average leader can become extraordinary. Armed with this knowledge, Mr. Average can pluck meaningful insights from the mountain of 360-degree data. With relatively simple analysis, the feedback can be understood—and practical, focused development plans can result.

Mr. Average should begin by identifying “good” competencies that can be improved to “great.” Fortunately, he has five competencies with solid ratings (around 4 on a 5-point scale) and they are balanced across the leadership sectors.

- Character—Mr. Average “walks his talk.”
- Personal capability—He can deal with technical issues.
- Focus on results—Our man spends time working on issues that are important to the organization.
- Interpersonal skills—Mr. Average has built a strong team.
- Leading change—The business sees him as a key partner.

Mr. Average must build on these strengths to move to the top tier of leadership. He should do so by focusing on what Zenger and Folkman term “competency companions,” behaviors that, if improved, cast a positive halo effect. For example, by improving their interpersonal skills—that is, if they can explain what they know in a way that is “heard” by others—individuals can improve the way their technical skills are perceived. The competency companion approach to development is the best way to move perceptions from good to great.

Next, Mr. Average should analyze his 360-degree data to spot fatal flaws in any of the five leadership sectors. For example, the data shows that Mr. Average focuses his time and attention on his direct reports and customers, which makes his peers feel ignored. As a consequence, his peer ratings are pretty low. Improving peer collaboration and teamwork, by getting out of his office and interacting with his peers, is crucial for Mr. Average to continue his career progression.

The best way to improve organizational performance is by moving bad leaders to good and good leaders to great. Given that most of us are good and aspire to be great, the implications are obvious. First, dust off your latest 360 review. Perform the analysis outlined above and figure out how to build on your strengths and mitigate any fatal flaws.

Once you have your own development on track, reach out and help others make sense of the 360 feedback they have received but have been unable to use. It’s what any great leader would do.

Reader Q&A

Q: Can you outline other “competency companions” and explain how they boost the perception of leadership?

A: In *The Extraordinary Leader*, by John Zenger and Joseph Folkman, the authors identify competency companions for 16 key leadership behaviors. A few of the more interesting examples include the following:

- **Assertiveness.** Leaders who want to increase their character ratings should examine whether they have an issue with assertiveness. To receive strong integrity scores, the CIO must deliver on his commitments. This requires being assertive about fixing problems and ensuring that others are delivering as well.
- **Risk taking.** Leaders who set stretch goals that others can believe in and achieve are also strong in risk taking. By taking more risks and learning from them, CIOs will feel more comfortable setting stretch goals and, thereby, deliver more to the organization.
- **Self development.** Leaders who are strong in developing others are also strong in developing themselves. CIOs who want to improve their ability to coach and mentor others should start by working on themselves.

Q: What strategies do you recommend for overcoming “fatal flaws”?

A: Fatal flaws can derail careers. There are three challenges to overcoming fatal flaws. First, there is often a lack of understanding regarding the true nature of the flaw. Quantitative 360-degree surveys are wonderful for identifying the issue, but it’s often necessary to conduct interviews in order to fully understand it. Second, the fatal flaw may be due to a mismatch among talent, motivators, goals and the organization’s needs. A leader in

the wrong job can easily exhibit one or more fatal flaws. Third, once the flaw is understood, it is important for the individual to receive

Have a Leadership Question?

For more reader **QUESTIONS** and answers from **SUSAN CRAMM**, go online to www.cio.com/leadership.

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on-the-job coaching and frequent feedback and to be held accountable for making the necessary behavior changes. Many companies use external coaches to help leaders “intervene” on behaviors that are derailing their careers. **CIO**

Susan Cramm is founder and president of Valuedance, an executive coaching firm in San Clemente, Calif. You can e-mail feedback to susan@valuedance.com.



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Paving the Way to Enterprise Modernization

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THE IMPERATIVE FOR enterprise modernization is simple: It comes down to common-sense economics. Familiar legacy systems have been the foundation for many businesses for decades, so it's easy to ignore the compelling economics of the non-proprietary alternatives. But, in fact, these alternatives not only offer strategic benefits and immediate tactical pluses—they are also almost invariably less expensive. In short, the ability to seize a compelling ROI is often just a decision cycle away.

Maintaining legacy systems is expensive. First you have the built-in cost of proprietary technology. Add to that the labor overhead of maintaining and updating hand-built code and patchwork systems. But the bigger issue is that spending on legacy systems means not only throwing away money that could be better invested in more flexible and powerful IT solutions, but also—more importantly—tying your business to the fixed and outmoded operational styles of years past.

However, there are options. You don't have to stay where you are. You can break free and move ahead with the help of an innovative modernization services offering from EDS that takes advantage of Intel proces-

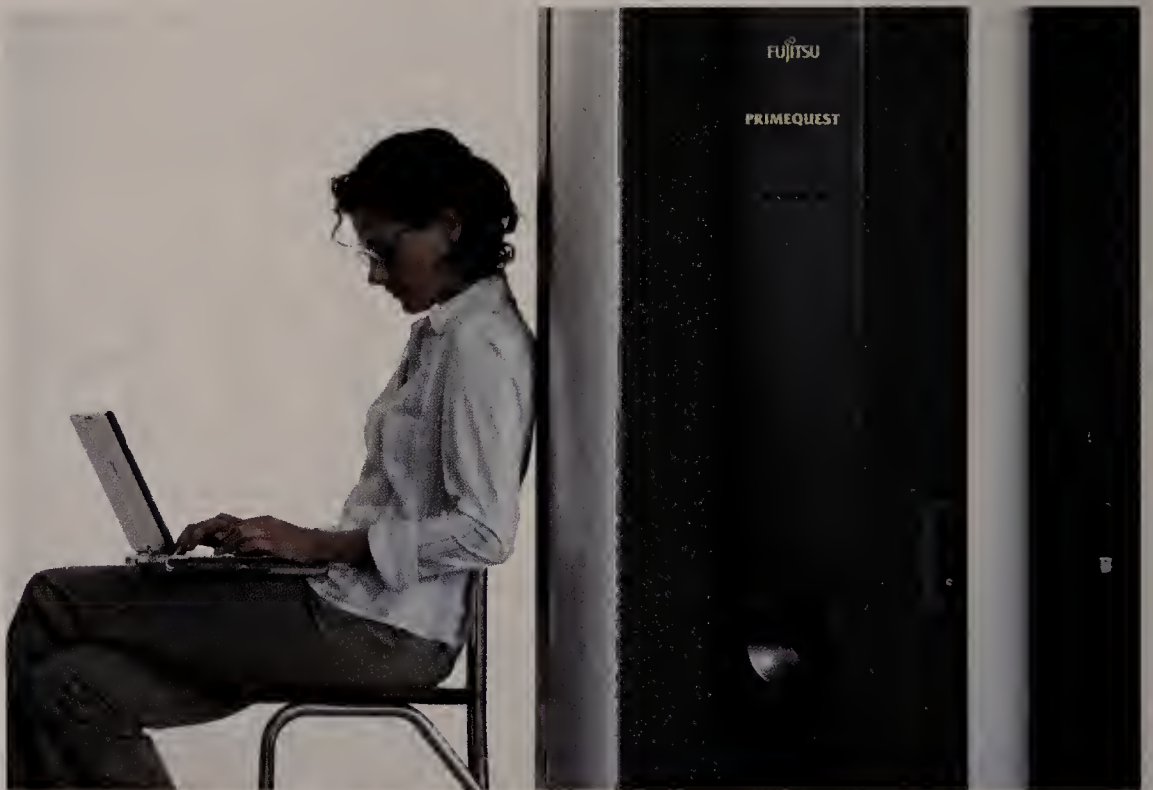
sor-based, industry-standard servers from Fujitsu and Oracle software solutions [see sidebar].

There is no one best way to modernize. The process begins with an assessment and review of existing applications with an eye toward long-term goals and thinking about what can be migrated and what should be migrated. Your partners in modernization should be able to attune themselves to your business and be open to finding a solution

that matches your needs. EDS—with its global experience—is ideally positioned in this regard, with many means of delivering modernization and the skills to help you assess and balance the value of various methods. Indeed, while the migrations that are core to modernization were once viewed as risk-prone, the tools, techniques, and well-honed best practices that EDS provides—as well as the power of Fujitsu hardware and Oracle software, which are the chosen tools for these migrations—now make this a predictable process.

This process, which can often be relatively noninvasive, produces a more agile, flexible infrastructure.

If you have been hesitant about initiating a legacy modernization program, this may be the perfect time to act. The cost has never been lower, and the risks never fewer.



Executive Summary

Businesses today are constrained by the inflexibility of older technology and its high maintenance costs. Breaking out of this trap will help businesses free IT budgets for strategic entrepreneurial opportunities, while creating a modern foundation that can sustain growth over the long term. In fact, according to "Data Center Consolidation," a 2006 CIO/Computerworld Nextgen IT survey, over the next three years, 44% of those surveyed plan to eliminate their mainframe environment. It's no longer a question of *if* you will modernize, but of *when*.

The Power of Partnership

Since inefficiencies caused by out-of-date technology can slow down operations, hobble customer service, and hurt competitiveness, it makes sense to adopt more modern and appropriate technology. And the sooner you make the transition, the sooner you can begin to achieve the benefits.

EDS, the leading global technology services company that pioneered information technology outsourcing more than 40 years ago, today delivers a broad portfolio of information technology and business process outsourcing services, including modernization.

Because of the power of Oracle application development tools such as Oracle JDeveloper, Oracle ADF and Oracle BPEL Process Manager, EDS is able to quickly re-factor extracted business logic and deliver re-architected systems accurately and cost-effectively.

Clients in a wide range of the manufacturing, financial services, healthcare, communications, energy, transportation, and consumer and retail industries—as well as in government—look to EDS for help in transitioning from cumbersome legacy systems to more modern (.NET and J2EE), adaptable, and affordable architectures. To best deliver what those organizations need, EDS has also partnered with

Fujitsu, a provider of industry-standard servers. Those servers, in turn, are built on Intel processors—processors that have become the backbone of business for thousands of applications in companies across virtually every industry. In fact, Itanium® 2-based servers power nine of the 10 largest companies in the world. Thanks to those technological underpinnings and Fujitsu's deep data center expertise, its servers deliver an unprecedented level of mainframe-like reliability, availability, and serviceability (RAS).

For example, the Fujitsu PRIMEQUEST™ server line combines Fujitsu-designed memory and I/O sub-system with the economics of the Intel® Itanium® 2 processor to produce a mainframe-class, mission-critical open systems server. The scalability designed into PRIMEQUEST provides the agility, efficiency, and continuity to meet a business's needs now and well into the future. And it makes a perfect starting point for EDS modernization services.

Change is a necessity. But don't go it alone. EDS and its partners at Intel, Fujitsu, and Oracle have put together an approach based on standard technology building blocks, best practices, and global experience with different companies. It's a formula for adding value while lowering risk.

A Healthier Bottom Line

Of course, changing the status quo is never easy. Companies are besieged by tactical concerns such as demands to lower the cost of a particular application or to support a new business initiative. These day-to-day concerns often threaten a company's ability to act strategically. Fortunately, modernization delivers clear and rapid ROI, making it a compelling choice.

While the exact results are dependent upon the software language, number of lines of code, complexity of applications, and amount of processing being done, payback periods average from 6 to 12 months, making the argument in favor of exploring modernization undeniable. In fact, the experience of EDS clients has demonstrated that simply re-architecting a Cobol application to a more modern SOA software infrastructure based on Oracle Fusion Middleware can often reduce the number of lines of code being managed by 50 to 70 percent. The overall impact of a change of this magnitude to the business is compelling.

Furthermore, enhanced features and greater functionality are delivered by driving new ergonomic interfaces, real-time data access,

seamless web capability and mobility access, all while preserving the application's business logic. Real cost savings can be achieved and can range between 35 and 60 percent over a three-year period. These savings are generated through lower maintenance costs for COTS software, reduced application development costs, and significantly lower operating costs. And the reliability, availability and serviceability of the system remain the same.

Organizations that have modernized have found themselves better equipped to handle crises and meet new challenges. Most of all, modernization means they can move faster to seize marketplace opportunities.

The bottom line is that, with modernization, IT organizations can reclaim their ability to function as change agents and as a source of business leadership and competitive advantage. Determining the impact of modernization on your organization is worthwhile because—in addition to delivering benefits to your organization—it can potentially reduce your management challenges. And that is perhaps the most compelling argument for modernization.

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Get Smarter About Security Risks

How much you should invest in protecting corporate data depends on how good you are at assessing the threat



There's a reason companies are asking CIOs to solve a new kind of security risk every time they turn around. Business continuity threats, data breaches, malicious code and stolen laptops all have one thing in common—they're the price of information technology's success. Information security is an issue because most of our core business processes incorporate IT, and technology has started to break down the stovepipes that used to protect corporate data.

CIOs have always had to prioritize risks when deciding how to allocate resources. What's different about information security risks today is the uneven ability of CIOs and their business partners to assess them. Every company faces a different mix of security risks. And every one has a different set of information advantages and disadvantages—call this risk intelligence—for assessing each of those risks. IT executives have no choice but to sort out which security risks are big, which ones are small and, most important, which ones they and their colleagues are not very good at evaluating.

This last challenge is new. The methods for estimating the size of a risk usually involve polling business partners to determine the worst-case loss they expect in a given period of time. But CIOs still have to evaluate how accurate these assessments are. One company may know from experience how information integration can compromise records. Another might have learned what a data breach costs. But it would be a mistake to assume every company, or even every business leader within a company, has the same ability to assess the likelihood or impact of fast-evolving threats. So a critical new step in allocating resources for security risks is to determine which ones your

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organization is good at assessing before you rank the risks and estimate how much it would cost to mitigate each one.

How to Assess Risk Intelligence

To assess your risk intelligence, ask yourself these five questions for each major security risk you face.

- How frequently do you have experiences related to the risk you're evaluating?
- How surprising are these experiences?
- How relevant is your experience to the risk you're evaluating?
- How diverse are the sources of information about the risk?
- How methodically do you track what you learn from past experience about mitigating risks?

Score your answers on a scale of 0 to 2, where 0 means you and your business partners have less understanding about this risk and its contributing factors than others on your list; 1 means your understanding is about average; and 2 means you understand it better than other risks. Add up your answers for all five questions. Scores fall between 0 and 10; 5 means you think your ability to weigh a risk is average across the five factors. It doesn't matter if you're a tough or an easy grader: What you're doing is ranking your risk competence.

Now rank your organization's information security risks

by their risk intelligence score. You may want to allocate more mitigation resources to the ones that score the lowest, because these are the ones you are worst at assessing. For larger companies, it may be important to score the risk intelligence of each business unit facing a single risk. In this way, you can figure out which business unit has the clearest understanding of the threat, though you may still allocate more resources to the unit that scores the lowest.

By the way, this is the opposite of the conclusion you'd draw for elective projects. It makes sense to pursue discretionary projects that pose risks we're good at assessing. But when the risks are unavoidable, the question is different. We need to focus on the risks—or the parts of the business—where we're most likely to make a mistake.

How Assessments Help Decision Making

Here's how to apply the risk intelligence methodology. Suppose your company has been spooked by recent security breaches that have compromised customer data. You're trying to figure out just how much—and where—to invest in security safeguards. The company's network has never been breached, although a competitor's customer database was compromised and the story was all over the news. Closer to home, a laptop

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was stolen from a salesperson's car a few weeks earlier.

So you ask the heads of your company's business units (let's say there are three) what would be their worst-case loss for a security breach. Compared to their revenue, the estimate from business unit A seems too large, B seems too small, and C falls between A and B. You want to judge who is most likely to be accurate, so you score the risk intelligence of each of the three business unit leaders.

The business leaders have different amounts of experience with security breaches. Because of the volume of its customer data, you give a 2 to business unit A, meaning a lot of potentially valuable experience. You give B and C each a 1 because their experience is about average for their business segments—they keep track of the problem but haven't suffered a breach so far.

Next you ask how surprising the experience of each of these business units tends to be. The salesperson who lost the laptop works for A, so A gets another 2. B hasn't typically attracted privacy threats, so it gets a 0. C gets a 1 because its experience in this area is about as surprising as that of most companies.

Now evaluate how rel-

evant this experience is. You believe the number of integrated customer files is a big factor. A keeps each set of data in separate systems, so it gets a 0. B has both multiple- and single-file customer systems; it gets a 2 because this experience should be highly relevant to whether the integration of files really matters. C's experience seems average, so you assign a 1.

And so on. Tallying the scores, it turns out A has the best understanding of the magnitude of your company's problem with security breaches. Thus, you apply A's standard for evaluating the risk to the whole company. But you decide to pilot new security systems with C because there's reason to expect it is least prepared to deal with the risk of a security breach.

Risk intelligence analysis does not replace the exercise of judgment in prioritizing security or any other IT-related risks. But laying out the main issues—the worst-case loss assessments and the reliability of those assessments—helps you apply your judgment systematically. And it provides a basis for discussing with your executive colleagues the key trade-offs in your risk management strategy. **CIO**

David Apgar is the author of *Risk Intelligence: Learning to Manage What We Don't Know*. Comment on this article at the online version at www.cio.com/110106.



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The Art of Influence

BY ALLAN HOLMES

Without it, you'll never get anything done. Four veteran CIOs share some tried-and-true techniques for convincing colleagues to do what's needed.

Last spring, Scott Heintzeman, CIO of Carlson Marketing, and his staff were developing new business intelligence systems. The project would support Carlson's marketing business unit 1to1, which helps clients mine their customer data to create individualized direct-marketing materials. Carlson executives expected the business unit—a new line of business within the company—to be one of its top performers. Heintzeman knew he had to deliver, but he couldn't do it on his own.

Heintzeman was not worried about the technology needed to support the unit. He was more concerned that 1to1 lacked a strong business leader—someone aggressive enough to establish business processes and rack up some quick wins, while personable enough to help employees through the inherent stress and uncertainty of a new venture. Heintzeman believed he knew someone who was right for the job: Janet Sparkman, the general manager of Carlson's Gold

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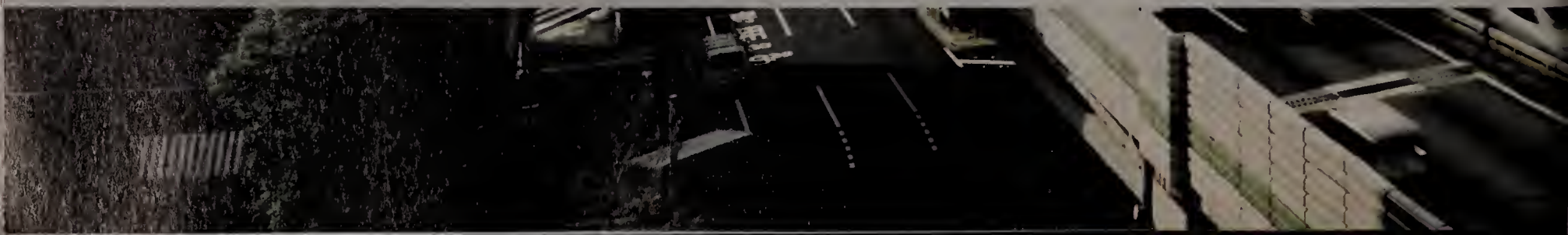
- :: Situations in which CIOs must influence colleagues
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Points Reward Network, a customer loyalty program that is one of Carlson's core businesses. Heintzeman had worked with Sparkman previously and they worked well together. So he asked Sparkman to consider a job change. She flatly declined.

That's when Heintzeman went to work, lining up support for his plan among other business leaders and assembling a dream team within IT to support Sparkman. He knew what attracted

HOW TO RECRUIT A BUSINESS LEADER: Give Her the Team She Wants

Heintzeman knew it wasn't his job to find a leader for the new business unit. And he understood that as the CIO, it would be difficult to convince his colleagues, particularly CEO Jim Shroer, that the company needed to shift some personnel. But when it comes to areas where he thinks he can help the company improve, Heintzeman says,

"I make it my responsibility."

First, Heintzeman had to contend with other business unit leaders who were skeptical of his idea. They included Shroer, who suggested instead purchasing a company that had the technology and management expertise Heintzeman was looking for. But Heintzeman

argued that he could spend millions

less by buying the technology himself and that Sparkman had the tenaciousness and the connections throughout the company to develop the 1to1 business successfully. Shroer changed his mind and began working on other executives.

Getting his boss on his side was a big victory, but Heintzeman still had to convince Sparkman. He turned back to his IT group and set to work building a team that would appeal to Sparkman. Heintzeman offered her Ben Leonard, one of his top project managers and someone Sparkman knew. He also hired Mike Bradway, an analyst and data modeling expert who

had worked on one-to-one marketing campaigns for Target. In addition,

Heintzeman promised Sparkman she could bring one of her own IT project managers, Kurt Wood, who worked directly with her Gold Points clients. Wood could apply his knowledge about those clients to the new IT system.

At that point, Sparkman "was beginning to see a team she knew and who were part of the top talent in the company," Heintzeman says. "She knew

I was serious."

Finally, Heintzeman and Sparkman discussed how she could use the new systems he was building to sell 1to1 services to her existing Gold Points clients. "Bells and whistles started to go off then," Heintzeman recalls. "She had a prestocked pond in which to start fishing. That tipped her over."

It took Heintzeman six months to work the relationships he had throughout the company to get Sparkman to take the job. "I worked with what I had," he says.

"The ability to lead from the back is essential for success. Without influence skills, CIOs are relegated to being order takers."

—Susan Cramm, executive coach

Sparkman to new ventures: "Janet isn't going to join something that she cannot win," Heintzeman says. "No way would she make that change if she did not have the right IT team to support her."

Heintzeman's initiative to weigh in on a strategic business issue is familiar to any executive but particularly challenging for CIOs, who have little formal power, observes Susan Cramm, a former CIO of Taco Bell who is now an executive coach (and a *CIO* columnist). Often, a CIO's impact comes down to how good she is at convincing business leaders and end users—who don't have to listen to her—to follow a strategy that the CIO deems important. "The ability to 'lead from the back' becomes essential for success," says Cramm. "Without influence skills, CIOs are relegated to being order takers."

To have influence, it's not enough to be able to explain IT in an easy-to-understand way. To sway opinions and convince others to act, CIOs need expert knowledge of their subject and its relationship to the business, the ability to adapt their message to how their audiences like to learn, access to allies who will support their goal and the ability to vet ideas in a nonthreatening way.

We interviewed four CIOs who employ these and other techniques to influence the strategic direction of their companies. Their influence is directed toward a variety of goals. These include—in addition to Heintzeman's effort to persuade an executive colleague to change jobs—redirecting an outsourcing strategy, persuading a senior executive to make a major IT investment and selling new technology to skeptical end users. Having influence requires developing relationships that are based on trust so that you gain allies inside and outside the IT department to vouch for you. "CIOs need to make sure they are investing in relationships all the time, because one day you will have to take a withdrawal," Cramm says. "If you wait until something happens that requires you to rely on someone, [and] you don't have any [capital] to withdraw from, you won't be able to influence anything."



Scott Heintzeman
CIO, Carlson Marketing Group

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HOW TO REDIRECT A PROJECT: Present the Facts

For Peter Walton, CIO with the global energy company Hess, it was an uncomfortable moment when the idea to conduct a global efficiency study was first introduced at an executive meeting in June 2005. Hess executives planned to study the company's back-office operations such as finance, human resources and IT with the aim of outsourcing much of the work.

Walton wasn't against outsourcing—he had already contracted out some software development and was considering some other functions. And he was excited by the company's aggressive goals for improving its operations relative to its competitors. What concerned him was the approach—to hand the work over to a single vendor in India. Walton believed that the company should source specific functions to multiple companies that specialized in each area. Only after comparing the outsourcers' costs and service levels to its internal costs could Hess determine if the outsourcing could benefit the company. "In all my years of experience, nobody has headed into a project like this without having an outsourcing strategy, and we didn't have one," Walton remembers thinking.

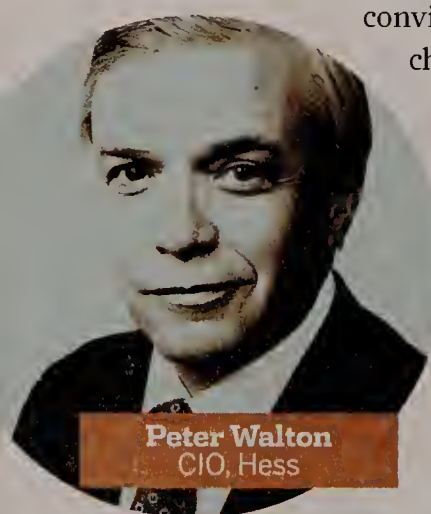
Walton knew that simply stating his opinion would not convince anyone of a different approach. A more effective way, he thought, would be to put together a presentation detailing the latest expert opinions on outsourcing and delivering it to those managers in charge of the project.

Providing facts from experts, Walton believed, would remove any chance that his position would be viewed as subjective. The first person he would have to

convince was the project manager in charge of the efficiency study, John Douglas. Fortunately for Walton, he had worked with Douglas on a project two years prior, and the two had gotten to know each other. "There was some trust already there," Walton says.

Back in his office, Walton combed through data he had collected during his three years as Hess's CIO and picked out some key points. He included in his report two slides from the Concours Group that he had saved from a presentation he'd seen at a conference a few months earlier.

One slide, titled "A Blunder: The Wrong Way to Outsource," presented the path that a global electronics manufacturing company took to outsource many of its IT functions. The company's new CEO had promised to cut IT spending by 18 percent, but the goal had no



Peter Walton
CIO, Hess

The Influence Continuum

Your work isn't done even after people agree to your ideas

THE NEED FOR STRONG influence skills doesn't end once you have convinced colleagues to accept a new business process or system. A common mistake that CIOs make once a project gets underway is to rely on "the ye ol' generic change speech," says Jerry Jellison, a social psychologist and professor at the University of Southern California.

The typical exhortation that "we've got to do this because it is good for the company" doesn't work, he argues. In his recent book, *Managing the Dynamics of Change*, Jellison outlines for executives a five-step process for using their influence to improve the chances that any change will be successful. Jellison calls the process the "J curve," which describes how any large-scale (read strategic) change affects productivity: lowering it at first, then later raising it.

Following are the stops along the J curve and Jellison's advice for what CIOs can do to influence the outcome of any project.

The plateau. Colleagues are comfortable with existing systems and processes and resist new ideas. **Method of influence:** Inform business leaders and the CEO that change will temporarily decrease productivity and morale, but both will improve over time. Identify the smallest barriers to change and remove them.

The cliff. A new system or process has been deployed. Users are making mistakes, and new processes are not fully understood. Staff and business leaders are highly resistant, and fear of failure is common. **Method of influence:** Walk users through new procedures in minute detail. Communicate that mistakes are expected.

The valley. Users are beginning to learn from mistakes. Although these users are becoming familiar with new processes, it's hard for business leaders to see the improvements yet, and they attribute any progress to luck. **Method of influence:** Point out small successes. Acknowledge criticism, and follow with suggestions for improvement.

The ascent. Employees begin to praise the system, and productivity nears predeployment levels. **Method of influence:** Reinforce reasons why the system was put into place, and publicize progress.

The mountaintop. Employees become proficient with new processes, and productivity surpasses past levels. **Method of influence:** Don't gloat. Encourage colleagues to think strategically how processes can be improved even more. Use your success to influence future change. —A.H.

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connection to the company's overall business strategy, according to the slide. Written on the slide were the consequences of the company's approach: The company lost some top employees as well as its reputation as a great place to work, and the company was reworking its outsourcing contracts.

The second slide presented another case study, this one of a global financial services company. The company's executives believed there was a looming shortage of critical IT skills that the company knew it needed. The company chose to outsource more than 60 percent of its IT staff to get those skills, giving the work to six vendors with operations in the United States, India, the Philippines and South America, which were chosen based on their expertise and cost. As a result, the company improved productivity, reduced costs and improved the level of IT skills available to them.

Walton sent the material to Douglas, who agreed to consider the more strategic view. After conducting additional research, Douglas brought in the Concours Group to make a presentation on sourcing strategy to the executive steering committee. Subsequently, Hess determined it would outsource different functions to separate companies specializing in the relevant fields.

"You need outside materials that have a wow factor that can hit [your audience] right between the eyes," Walton says. "When you're [looking at] a way of operating that is just like a case study that ended in failure, that's powerful."

HOW TO SELL NEW TECHNOLOGY: Play to Your Audience

When Partners HealthCare System CIO John Glaser met with his boss, CEO James Mongan, to pitch an investment in service-oriented architecture, he knew the meeting had the potential to be difficult. He wanted to introduce Mongan to a complex theory about IT and explain how it could be a strategic asset, but he knew Mongan had little patience for theory, and less for technical detail.

But today, Glaser is near to signing a contract to develop an SOA. He attributes his success to the simple fact that he took the time to understand how Mongan likes to receive new information. That's something most CIOs fail to do, Glaser says. "If you don't understand how they learn, it will be like talking to your teenage daughter," says Glaser (who has one). "The root language you share may be the same, but you just have a very difficult time understanding one another."

Glaser says discovering Mongan's learning process was unscientific and took months. Glaser gathered intelligence by talking to colleagues who had met with Mongan, asking

5 Ways to Increase Your Influence

- 1 Understand what motivates those you are trying to influence, and make them an offer they can't refuse.
- 2 Provide independent evidence that supports your position.
- 3 Know how your audience likes to receive information, and tailor your presentations accordingly.
- 4 Talk informally with stakeholders, and give them a chance to air their ideas or concerns.
- 5 Call upon colleagues with whom you have good relationships who can help you promote your goals.

what worked and what didn't and what his reaction was to certain approaches. He observed Mongan both in one-on-one meetings and in executive meetings, noting how he responded to presentations and different communication styles. He also asked Mongan directly about how he liked to have information presented. In essence, Glaser developed an intimate relationship with Mongan to know not only what made him tick, but how he ticked.

Attention to the details of how best to communicate with Mongan paid off for Glaser when he made his SOA pitch. When he first met with Mongan about the idea last year, he started with a presentation that illustrated how Partners hospitals and medical centers couldn't share patient data. Glaser knew Mongan cared a lot about patient safety, so he described an example of how data about patient allergies and the incidence of diabetes weren't accessible to all the medical professionals who needed to know. "That's trouble," Glaser remembers telling Mongan. "This is set up in a way that somebody could get hurt."

Glaser then showed a slide that illustrated how a properly designed network could enable healthcare providers to share all patient data easily and more efficiently. Not until the end of the presentation did Glaser mention SOA. But when he did, he "equated the theory with how it works in real life and the business value with the term," Glaser remembers. "That's how he likes to learn."

Glaser waited for Mongan's reaction. He hoped the presentation, designed as it was to Mongan's preferences, would elicit a dialogue. Soon Mongan stood up from his seat and walked to a large whiteboard. He drew a box on the left-hand side, representing patient data that was stored in database silos. He then drew a box on the right and, pointing to it, said, "If we had a common application here, wouldn't that solve the problem?"

"Right Jim," Glaser told Mongan, "but the challenge with that is it's expensive and will drain our resources." Mongan then drew a box in the middle, representing the SOA, tying



John Glaser
CIO, Partners
HealthCare System



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During casual conversations, people are more at ease and more willing to discuss change. "In a formal setting, people can feel pushed into an idea."

—Sue Powers, CIO of Worldspan

together the application box and the databases box. "Right then I knew he had internalized it, made it his own," Glaser says. "He understood it and was ready to take the next step."

The lesson, Glaser says, is that everyone learns differently, and that successful communication requires more than not speaking IT jargon. It requires knowing your audience and tailoring your message accordingly.

HOW TO BUILD SUPPORT FOR CHANGE: Talk to Everyone—A Lot

Sue Powers, CIO for Worldspan, relies on a methodology called "socializing an idea" to nudge, cajole and encourage her colleagues to consider a new IT system or business process.

The approach is an active one. It requires more than simply running an idea up the proverbial flagpole. Socializing means active engagement and interaction outside formal meetings,

where people are less guarded. During casual conversations (in the hallway, in their offices, over lunch), people are more at ease and more willing to discuss change. They also are more likely to discuss their objections to an idea, making it possible to come up with solutions. "In a formal setting, people can feel pushed into an idea," Powers says. "This way they feel they can be more honest."

For example, a few years ago, Powers wondered why Worldspan couldn't get the same Internet access deal she had at home: an inexpensive DSL connection. At the time, Worldspan, which operates travel reservation systems, spent \$400 to \$500 a month for a fairly low-bandwidth connection linking the company to its travel agent customers. Worldspan CTO David Lauderdale picked up on the idea and began talking with Worldspan's 650-member technology team about how much more flexible and efficient a standard IP network could be. The technology team was sold, but they had to convince the rest of the company. And

then the objections came fast and furious. Some business managers speculated that travel agents wouldn't want to buy their own PCs and Internet service, preferring to have Worldspan provide their connectivity. Others worried about the technology transition. Salespeople said Worldspan could not get out of its contracts, which required Worldspan to provide dedicated service and equipment.

But Powers and her team persevered. They spent several weeks bringing the idea up again and again with business colleagues and customers during lunch, after company meetings, at after-hours get-togethers, at company functions, or during any casual conversation. Powers didn't emphasize cost savings (although the new system would ultimately save tens of millions of dollars); instead she solicited reactions to the potential benefits of the change (the new system would be more reliable, easier to maintain and simpler to use). "The early feedback [from these initial conversations] caused us to think more about what was in this for everybody, and we were able to better think through the benefits for customers and salespeople," Powers says. "We ended up with a better plan." (To read about a process for influencing change once a project is underway, see "The Influence Continuum," Page 54)

Powers used the feedback from her informal discussions to write a business case for the new system, and her plan was immediately approved. When it came time to rewrite customers' contracts, the travel agents were sold on the added benefits they would get. Worldspan completed its rollout of the DSL network last year. "Getting people involved early by just talking with them allowed us to overcome objections and actually have a better sales plan," Powers says. "By the time we did the business plan, we had everybody pretty much on board." **CIO**

Washington Bureau Chief Allan Holmes can be reached at aholmes@cio.com. To comment on this article, go to the online version at www.cio.com/110106.

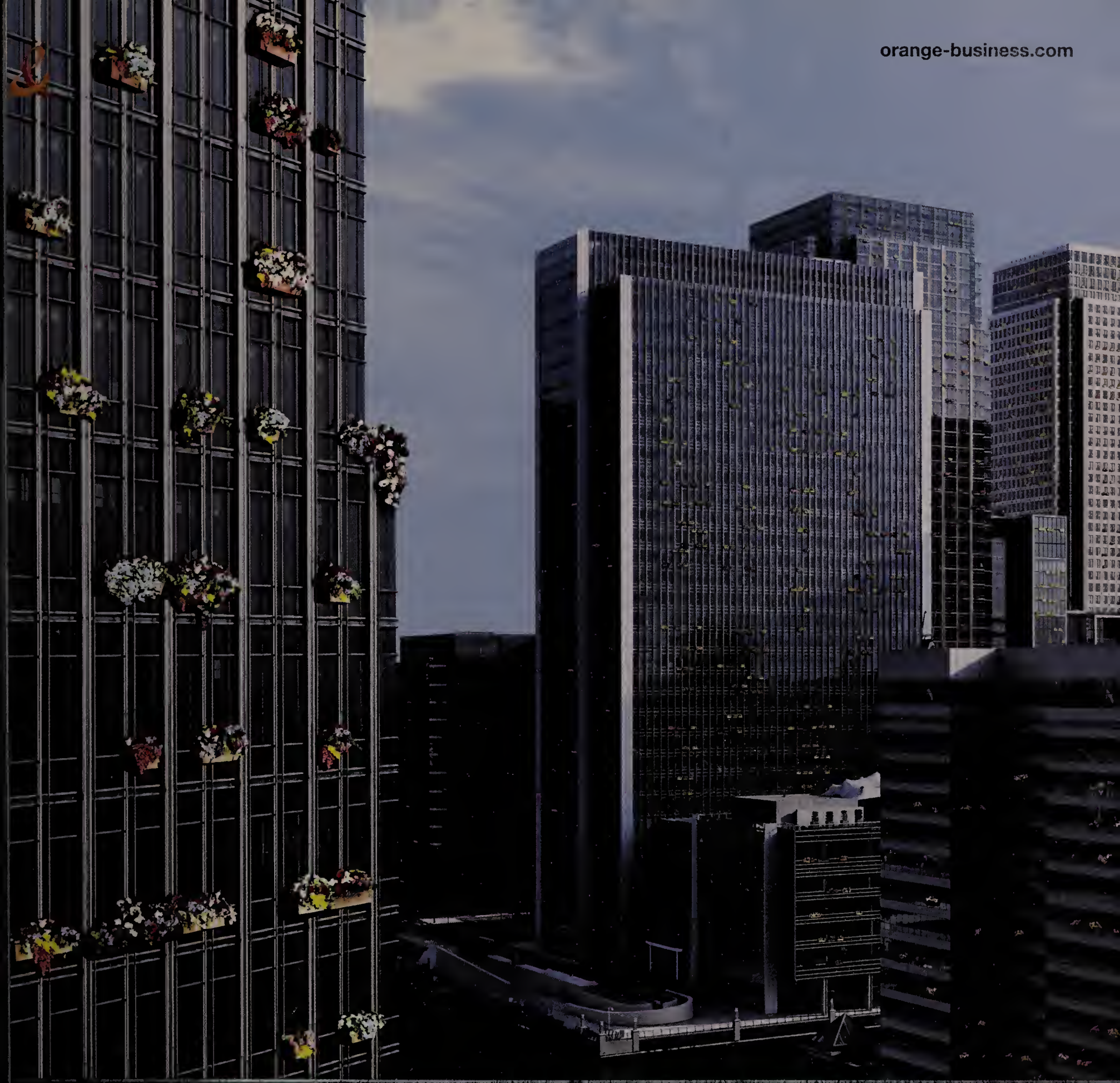
More About Influence

University of Southern California psychologist Jerry Jellison writes about **HOW TO INFLUENCE CHANGE** in his book *Managing the Dynamics of Change*. Download a chapter at www.cio.com/110106.

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Sue Powers
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Cheap Frills

First came Southwest: no frills.
Then JetBlue: a few more frills.
Now Virgin America: low fares, deluxe service
and a new approach to IT.

BY STEPHANIE OVERBY

HOW MANY HIGH-PROFILE CIOs can say they got their job through a free ad on Craigslist? Probably not that many. But that's exactly how Bill Maguire became vice president and CIO of Virgin America.

Which makes sense. Like any startup, Virgin America must do a lot with a little, including fishing for IT talent in Craigslist's free pool. That said, Virgin's resources—\$177.3 million in funding and a license to use the Virgin brand name, purchased from investor Richard Branson's Virgin Management Ltd.—are

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Virgin America CIO **Bill Maguire:**
"We're coming along at a time
when technology—if you under-
stand how to use it—is a lot more
lightweight, fast and flexible."

a bit bigger than Craig Newmark's were when he began his eponymous community forum a decade ago.

But, again like Craigslist, the upside is big. Virgin America's plan is to create a new kind of low-cost carrier. Its fares will be in line with the sub-\$300 cross-country round-trips offered by the JetBlues of the industry, but it intends to deliver a customer experience more along the lines of Singapore Air, the first to offer such perks as in-flight high-speed Internet service.

Virgin America executives say they want their airline to embody the next step in the evolution of bargain flying.

They're a bit closed-mouthed about many of the details of what exactly that means, at least until they start selling seats early next year. But they have revealed the plans for their first route (San Francisco International to New York's JFK), their fleet (34 brand-new, fuel-efficient Airbus A320s) and certain in-flight amenities (like seats built by Italian race car seat maker Recaro with thin backs to provide more legroom). They plan to create a simplified fare structure with just a handful of price points that consumers will understand, and they hope to sell 70 percent or more of their tickets through the Web.

And their IT strategy will be, of course, lean and mean.

The Virgin Vision: IT Is Key

Virgin America knows its ability to offer those differentiating amenities to a price-conscious public will depend in great part upon keeping IT costs low. Maguire, whose background features a flair for squeezing nickels until they beg for mercy, will have at his disposal a generation of technology that was not available even as recently as JetBlue's 2001 launch. (See "The Virgin Tech Stack," Page 70.) He plans to deploy a mix of lower-cost (and in some cases no-cost), efficient and agile systems to create the foundation for Virgin's "low-cost, high value" business proposition.

"We're coming along at a time when technology—if you understand how to use it—is a lot more lightweight, fast and flexible," Maguire says. "You don't have to put in a bunch of mainframes to run huge systems like United and American had to."

Who's Who at Virgin America



Sir Richard "The Silent Partner" Branson: Investor
British billionaire owns 49% of Virgin America and a 25% voting share—the maximum allowed by U.S. law. Led successful launches of Virgin Atlantic in London and Virgin Blue in Australia. Will not be involved in management of Virgin America.

Don "The Businessman" Carty: Chairman

Former chairman and CEO of AMR, the parent company of American Airlines. Since resigning in 2003, has taken on roles as chairman of Porter Airlines, a regional carrier in Toronto, and Virgin America. Also a director for Sears Holding and Dell Computer.

Fred "Old School" Reid: CEO

More than 25 years of experience in legacy airline management at Lufthansa. Most recently president and COO of Delta Air Lines. Oversaw launch of low-cost subsidiary Song before Delta declared bankruptcy.

Bill "The Slasher" Maguire: CIO

As CIO of Aspect Communications from 2004 to 2006, redesigned infrastructure, reduced IT budget by \$4 million annually. As Legato Systems CIO from 2001 to 2003, cut IT spend by \$3 million annually while leveraging emerging technologies like VoIP.

Bob "The Banker" Dana: CFO

An investment banker for 16 years, Dana was the first full-time member of the Virgin America team. Arranged nearly \$1 billion in aircraft financing, implemented a financial control system, managed vendor selections, recruited other senior execs.

Brian "The Flyer" Clark: VP, Planning and Sales

A licensed private pilot. Spent the past nine years at US Airways. Background in airline market planning and scheduling, operations, brand management and aviation law.

Frances "The People Person" Fiorillo: Senior VP, People and In-Flight Services

Most recently served as chief HR officer for the Provincial Health Services Authority in British Columbia. Previously spent 28 years in the airline industry, starting out as a flight attendant for Canadian Pacific Airlines in 1974.

Spence "Image Is All" Kramer: VP, Marketing and Communications

Former VP of advertising and promotion for ESPN. Oversaw strategy, creative development, production and marketing materials for television, radio, print and outdoor.

Todd "The Host with the Most" Pawlowski: VP, Guest Services and Airports

Former North American VP of customer service at Virgin Atlantic, imported to work his magic at Virgin America. During his tenure at Virgin Atlantic, the airline was oft-recognized for superior customer service.

—S.O.

Maguire, who became Virgin's CIO in January, knows the risk in embracing emerging technologies. But, as his colleagues at the airline are quick to point out, launching Virgin America is itself a huge risk—160 air carriers have entered bankruptcy since the 1978 deregulation of the industry, and most never emerged. (Go to the online version of this story at www.cio.com/110106 for a link to the July 2006 Government Accountability Office report on commercial aviation.) "The mortality rate is extremely high," says Tim Sieber, VP and general manager of airline consultancy The Boyd Group. "I typically tell people, If you start an airline, use your ex-wife's money."

"This whole venture is a risk," echoes Todd Pawlowski, Virgin's VP for guest ser-



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The Business Value of IT

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Note: CIO Publisher **Gary Beach** recently sat down to discuss top business/IT issues with five noted leaders: **Gregor Bailer**, CIO/VP, Capital One Financial; **Carole Cotter**, CIO/SVP, LifeSpan; **Lynn Vogel**, Ph.d, CIO, M.D. Anderson Cancer Center, University of Texas; **Todd Lunsford**, CIO, Quicken Loans; and **Karen Lay-Brew**, VP Licensing, Pricing and Operations, Microsoft. Over the course of an afternoon, these five leaders shared insights on three strategic business/IT issues: The Business Value of IT, Infrastructure Security and Management, and Innovation. These dialogues were recorded for a forthcoming series of webcasts and CIO inserts. Following is an excerpted transcript from the Business Value discussion.

Gary Beach: Everywhere you go these days, it seems CIOs are singing that song from the '80s by Bachman-Turner Overdrive, "Taking Care of Business." Business value, business value, business value – it's at the top of their agenda list. The first question I'd like to ask – and let's start with you, Todd because all of us here are in different industries – is how do you define business value? Is it top-line measurement? Is it a bottom-line measurement? Is it customer satisfaction? Is it all of that? How does Quicken Loans define business value?

Todd Lunsford: The main way we define it is revenue, top line. The other main factor for us is customer satisfaction.

Lynn Vogel: In health care, we come at this from the standpoint of our patients. So clearly, the most important thing for us is, are we making sick people well or making good progress toward that? As a specialty health care center, we have a clear mission, a clear set of goals, etc., that we try to follow. But the value really comes from, at the end of the day, our patients and how they are treated, how they are handled, and what their progress is in the elimination of their disease.

Beach: Karen, how do you define it at Microsoft?

Karen Lay-Brew: Well, we have a number of ways of looking at it. Revenue, obviously, is one. Another very important one is customer satisfaction. There's also the humanitarian effect and how we contribute to the betterment of the human race. How do we actually progress? So that's a third way of looking at it. There are different ways of measuring it. There's the IT value,



there's the process improvement type of value, and there's how it actually impacts the customer. How does it add to the customer? All those add together to become what I call a total business value.

Beach: Gregor, Capital One, what does it look like? What does it feel like?

Gregor Bailer: For us, Capital One is all about growth and diversification and creating a value

proposition for our customers that they can't find in the traditional financial services companies. So for us, the bottom line is measured by all sorts of financial metrics. But if we're not creating new, innovative services for our customers, we're not being successful. So that's really what it's all about for Capital One.

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Beach: Carole? You work for a health care company.

Carole Cotter: I do. And for us, we've been very focused on the patient, as well, as Lynn said. That's our ultimate customer. We've been focused on patient safety initiatives. There is a wealth of medical literature about ways IT can be used to improve the safety of patients in a hospital, and that's what we've been

very focused on. We've automated the closed loop of medication safety, and we have seen some very good results.

Beach: Karen, we talked about business value. Who defines business value? How collaborative is that group? And is that the same group that is working on aligning business and technology strategies?

Lay-Brew: Microsoft is in a pretty unique position. They've always known technology is of value. They've been in the business now for 30 years. The real beauty here is, we're talking about IT as a function inside a software company. I want to differentiate that. Now, IT as a function inside a company has the usual challenges that many of us in other industries face. Who determines the value? It's really the whole senior leadership and its appreciation of it. We have Steve Ballmer, our CEO, and Bill Gates – the whole senior leadership determines that the IT function in Microsoft now needs to mature. So they have brought in an external, experienced CIO in Stuart Scott and we start from that. Through this centralization of IT more recently, we're looking at how do we contribute to every individual function that we provide in the company. Licensing, pricing and operations – that's the area that I handle – there's a lot of contribution in that area. How do we bring that together? How do we raise the customer satisfaction? How do we enable revenue generation? What are the innovative ways that we can create new programs? So it's not one person. For example, our presidents, our senior leadership in the CFOs, we're in the process of forming a formal IT investment council. That goes to show you the intent and the seriousness that we have in terms of focusing on IT as a value generation.

Want to read more about the business value of IT? The conversation continues here: www.cio.com/webcast/sponsored/microsoft/IT

Next issue: IT Leaders discuss Infrastructure Security and Management.

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vices and airports, who joined the Virgin executive team three years ago. "If you're risk averse, you don't come to work on this project and you certainly don't work in the airline business. You have to be willing to push the envelope." And that's exactly what Maguire intends to do.

"As CIO, how often do you get an opportunity to build infrastructure from scratch?" Maguire asks. "I get to have a huge impact."

Experience Required

English entrepreneur Sir Richard Branson has been trying to figure how to break into the U.S. airline industry since the

mid-1990s. He founded the full-service transcontinental carrier Virgin Atlantic in London in 1984, but after seeing the success of Southwest Airlines he set his sights on new ways to exploit the low-cost carrier model. That led to his launch of Virgin Blue, a basic-service, Southwest-style carrier in Australia in August 2000. He also considered teaming up with David Neeleman (who in 1993 sold his first low-fare startup, Morris Air, to Southwest for \$129 million) to license the Virgin brand in the United States. But those talks never bore fruit, and Neeleman went on to found JetBlue, which sought to keep fares low like

Southwest but "bring the humanity" back into flying with creature comforts such as live TV, satellite radio and wider seats. Inspired by JetBlue's success, Branson's consultants began examining the prospects for a U.S. carrier that would combine cheap fares with high-end amenities.

The first executive to come aboard the as-yet-unnamed venture was CFO Bob Dana, an investment banker, followed soon after by Pawlowski, who came from Virgin Atlantic's U.S. operations. They developed a bare-bones business plan that was promising enough to attract \$177.3 million in startup capital. VAI Partners was created to become the majority owner of the company (the Department of Transportation has rules about foreign ownership, and so Branson maintains a minority interest, and no corporate role). Fred Reid, who previously oversaw operations at Lufthansa and who spearheaded the launch of low-cost Delta subsidiary Song before leaving his post as president and COO of the bankrupt carrier in early 2004, became Virgin America's CEO later that year.

"It's always helpful to have a seasoned airline executive at the helm," says The Boyd Group's Sieber. "[Reid] may not be able to run an airline, but he sure as hell knows how *not* to run one."

Diverse experience is a hallmark of the Virgin team (see "Who's Who at Virgin America," Page 62), who are all working out of the airport's official headquarters on Airport Boulevard in Burlingame, Calif.—thanks to more than \$10 million in subsidies and incentives that California and San Francisco offered it to set up shop there.

"What we're trying to do is create the next-generation airline," says CIO Maguire. "We're trying to create an experience where the passenger will say, This flight is going to be *cool*."

"Very early on, the perception was that we were going to be a no-frills airline [and] that low-cost equals low frills," says Pawlowski. "But we're trying to give people more for their money and elevate the guest experience...to the extent that's feasible when you're stuck in a tube at 30,000 feet. More full service. But we won't make the customers pay more for it."

If that turns out to be the case, it will



VP for Guest Services

Todd Pawlowski:

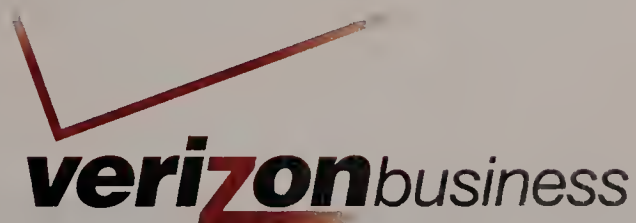
"If you're risk averse, you don't come to work on this project and you certainly don't work in the airline business. You have to be willing to push the envelope."

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differentiate Virgin America sharply from much of the industry today. (See "Flying for Dollars," Page 72.)

The Frugal CIO

To understand what Reid and his team saw in Maguire, one need only glance at the press release that announced his hiring, highlighting the millions he slashed from the IT budgets of various Silicon Valley software companies.

"When you're a startup, you don't have a lot of money to do a lot with," says Forrester VP of Travel Research Henry Harteveldt. "You have to do a lot with a little. But airlines are incredibly complex, and you have to be extremely careful about where you put your money."

Every dollar that Maguire *doesn't* spend

on back-end IT systems that don't provide visible customer value can be funneled into things that do, like kiosks in the terminal (which Virgin America, unlike JetBlue, will have at launch).

Maguire is getting the most bang for his buck in the infrastructure area. "I'm an expert in designing networks," he says. He started out "doodling with computers" in 1969 and worked his way up to managing the U.S. Postal Service's IT center in San Mateo, where he was responsible for all aspects of computer operations and where he built his own SAN in 1998. "I can save money by the way I design a company's network infrastructure or negotiate with telcos," says Maguire. And while that may sound less than sexy, he gets as excited about the fact that he can run his data center more efficiently—by cooling

the rack-mounted servers from the top with water-chilled AC units—as he does about the very early implementation of VoIP he oversaw at Legato Systems in 2001. And he's as jazzed about being able to get Verizon to give the startup a one-year contract (which is less expensive up front than the multiyear norm) as he is about the digital flight deck Virgin will be building into its planes.

"We don't have a ton of money," Maguire explains. "So it's great when the vendors can come to bat for us." The one-year contract with Verizon, for example, will allow him to tie the network rollout to the airline rollout "and save considerable dollars."

A huge financial burden for any IT shop is staffing, and Maguire's tactic here is to rightsize his mix of full-time and contract workers. For example, when implement-

Flight Delays

The competition tries to keep Virgin grounded

DELAYS ARE DEATH to any airline, and Virgin America has been facing a big one. Executives at the startup had hoped they'd already be celebrating their inaugural flight, but they've yet to receive final approval from the Department of Transportation—thanks to a concerted lobbying effort by a group of legacy carriers.

Virgin America submitted nearly 1,000 pages of corporate formation documents to the DoT last December, and within a week Continental, Delta, United and American filed motions to stay Virgin America's application based largely on laws that prohibit a foreign investor from owning 50 percent or more of an airline or more than 25 percent of its voting rights.

"Virgin America's application raised concerns about the ownership issue," says Ashley R. Miller, a spokeswoman for Delta, "and we expressed our concerns to the DoT." Virgin maintains that it's in compliance with the rules.

"You can sense the fear of the incumbent airlines," says Henry Harteveldt, vice president of travel research for Forrester. "They saw what happened when JetBlue entered the market, and they're terrified of this company that will try to 'out-JetBlue' JetBlue."

The challenge to Virgin's application is not without precedent. The legacy carriers filed motions against the startup of Legend Airlines in the late 1990s. Legend ultimately got DoT approval, but not before spending much of its funding

defending itself. It flew only a few months in 2000 before declaring bankruptcy. Harteveldt, however, does not think much of this tactic.

"If [the legacy carriers] took the money they've spent on legal costs associated with this and invested that into their product offerings—on-board TV, in-flight Internet, CRM—or if they'd taken the past 12 months and built up their customer relationships or their loyalty marketing programs, they'd be in much better shape to compete with Virgin," he says.

Not everyone agrees with Harteveldt. "It's a very competitive industry, and one more greased pig in the race doesn't do the competition any good," says Tim Sieber, vice president and general manager of aviation consultancy The Boyd Group. "If I were [a legacy carrier], I'd send a pack of lawyers out to trip up the competition too. It's cheaper than trying to compete with them. Worst-case scenario, they've pushed Virgin America back four to five months."

Every day an airline isn't flying, it's losing money but, in fact, this extra time on the ground could be beneficial for Virgin—at least for its IT. While Virgin is grounded (it now expects to take off in early 2007), other airlines, like Calgary-based WestJet, are going into production with the new Aires reservation system Virgin purchased.

"The vendor can learn from their real-world experience with the application and take steps to make sure things go better for Virgin America," says Harteveldt. —S.O.



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ing an application called AIMS to manage flight operations, he brought on a contractor with AIMS expertise for six months and let him go once the implementation was complete. "To get the job done, you have to learn how to balance contractor support versus permanent staff," says Maguire, who plans to operate with just 21 full-time IT employees when Virgin takes off.

A Hard Man with Software

Maguire is exploiting a mixed bag of tricks to cap his software costs—from creative licensing to making the most of open-source tools. Though he won't give away all his secrets, "I try hard to develop licensing patterns that use concurrent users instead of named users, which is what the vendors would rather sell. I like to license by size of server or CPU power," says Maguire, whose contracting savvy may be traced back to the three years he spent in law school before committing to an IT career. "I understand how to size systems and configure utilization so we're not paying gobs more than we need to. That just gets down to knowing your environment."

In fact, nothing gives Maguire more pleasure than exploiting lower-cost tech-

160 air carriers
have entered
bankruptcy since
the 1978
deregulation of
the industry.
Most never
emerged.

nologies. "We don't typically do that in this country," he says. "Take Microsoft or Oracle. They'll spend millions to develop software that we only use 10 percent of. Look at Word. I use a couple of features and that's it. For me, it's always been about how we make this server do more, how we make this application do more."

The Virgin Tech Stack

Database: MySQL, Oracle

Development tools: Apache Struts, J2EE, Perl, Self Scripts, SQL Developments

Deployment: Apache (Web server), JBoss and Tomcat (application servers)

OS: Linux, MS Server 2005

Hardware: Hewlett-Packard servers, Cisco network equipment, Sonic firewalls
—S.O.

Virgin America is building its own spam filter, load-balancing solution and change management tools, all based on free open-source code. Maguire estimates he'd have to pay more than \$80,000 for the traditional version of load-balancing software he now uses for free. "Some will argue that you can't get immediate support for these tools if you have a major breakdown, but it's amazing the support these [open-source] communities provide. We get updates to the spam filter every night from the community," he says. "It's way, way awesome." (For more on support and other open-source issues, go to www.cio.com/specialreports/opensource.html.)

On the finance side, Maguire's using Microsoft Dynamic GP (formerly Great Plains). The implementation cost him \$500,000, versus the estimated \$2 million to \$3 million Oracle price tag. Timing, often, is everything. "A few years ago, Great Plains wouldn't have been robust enough to support us," Maguire says. "Today it is." Maguire is also overseeing the custom construction of Virgin America's Web-based booking engine, with a Web design company called Anomaly working on the front end and Indian software shop NIIT coding the back end. "It's a cost-effective way to do it," he says.

And Then There's CRM...

In the CRM space—an area that most airlines have deemed to be cost-prohibitive—Virgin America has the advantage of starting from scratch, unlike most airlines. It plans to implement a hosted customer feedback system from RightNow and will

build its own CRM system to manage all the data it collects. "We don't care if this guy last Tuesday wanted a scotch neat with ice on the side," VP of Guest Services Pawlowski explains, but he does care "if we messed the guest around in the past, losing their bags." The attendants will know that, and the "guests will know we're paying attention and we're doing something to improve service. It's pretty ambitious."

To avoid the cost of either building a call center or managing its own work-at-home team the way JetBlue does, Virgin is outsourcing its call center to Willow, a provider of at-home agents. It's a big cost saver, certainly, but for an airline hoping to differentiate itself through customer service, it's also a big risk.

"It's an issue that we debated long and hard," Pawlowski says. The plan is to have Willow recruit specifically in Virgin's operating markets so the company can invite family members to the airports, let them use the products and services, and "throw other swag at them" to get them on board, says Pawlowski.

White-Knuckle IT

There are risks associated with all of Virgin America's IT choices—from outsourcing customer-facing roles to utilizing systems just robust enough to support the mission to implementing less-than-proven technologies. Maguire knows all this. When, for example, he first implemented a VoIP system at Legato, he lost power and saw his whole telecom system go down. "You stub your toes every now and then," Maguire admits. "But you learn. And overall, [taking risks] can make a huge difference."

All told, Maguire estimates he's saved the company \$500,000 in his first six months on the job and says he "will" save the company \$2 million a year "with the way we're building, managing and operating our systems."

But, cautions Forrester's Harteveltdt, "[Virgin America] will have to make sure that [these technologies] will support them—not just when they start up with a handful of planes, but in theory when they have 100 or more airplanes. You don't date technology in the airline industry; you marry it."



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Next-Gen Reservations

One of the most important systems Virgin America will be walking down the aisle with is its reservations system. These systems are the central nervous system of any air carrier. Despite the name, they handle not only passenger reservations but also inventory control, fares and ticketing, schedules, baggage and interface with departure control functions. And they touch every other system an airline runs on, from flight operations to Web-based booking engines. "[Reservations] can have an impact on everything from what you pay your pilots to FAA-mandated maintenance," Harteveltdt says.

Established carriers tend to operate on robust legacy systems such as Sabre or Shares (both supported today by EDS). But these feature-rich systems run on mainframes and are expensive to maintain and difficult to customize. Younger, low-cost carriers, such as Airtran and JetBlue, have opted for Open Skies from Navitaire, a less expensive and much more basic Web-

based reservations system. What both systems have in common is that, like all software that's been around for a while, the airlines that run on them face the challenge of upgrades or switching to new systems.

"Advances in tech have given the new airlines the ability to provide as robust a reservation system as something that previously would have been only available through a Sabre," says The Boyd Group's Sieber. "And as these newer systems become more evolved, they also give management the ability to do some incredible data mining that will enable them to make better business decisions."

Virgin's new reservations system is called Aires. Development was funded by travel giant Cendant and is being developed by Indian software developer IBS. The system is built on open architecture standards with a database layer, an application layer and a Web services layer. "It's fast, flexible and amazingly configurable," says Maguire. "We can run the business the way we want to instead of being dictated to by Sabre or

Navitaire." In essence, Aires offers Virgin a hybrid solution—one with the extended functionalities available in a Sabre system on a lower-cost platform. "If an airline wants to install an extra premium economy section, they can easily make those changes. It's designed to interface well with kiosks and Web booking engines," says Harteveltdt. "It's easy to operate, easy to train on and easy to manage."

Brian Clark, vice president of planning and sales, led the deal with Aires before Maguire joined the team. "When I was at US Airways, I was involved in the cutover from an old reservations system to Sabre, and I have a huge amount of respect for what technology can do for us," Clark says. "From a business perspective, new systems like this are fantastic because [they] allow us more flexibility than older systems. We can grow without limitation." Down the road, Aires could allow Virgin to integrate with travel partners, offering customers the ability to check in for a flight when they check out of a hotel or reserve a rental car

Flying for Dollars

You know the price of your ticket is high. What you may not know is that airline profits are up.

U.S. LEGACY carriers have begun to experience a financial turnaround this year despite record-high fuel prices, but they have done so largely on the backs of their customers. (To compare the industry's 2006 performance with 2005's, see "How to Save an Airline" and "Another Turbulent Year" at www.cio.com/021506.)

"The airline industry is coming back," says John Kasarda, director of The Frank Hawkins Kenan Institute of Private Enterprise at the University of North Car-

olina at Chapel Hill. "Their load factors [the ratio of paid passenger seats to total seating capacity] are up considerably due to an increase in passengers and cutbacks in capacity. And that's enabled them to raise their prices."

Airline fares are back to pre-9/11 levels, rising 10.3 percent in the first quarter of 2006 from the first quarter of 2005, according to the DoT's Bureau of Transportation Statistics' "Air Travel Price Index." It was the biggest year-to-year jump since

the DoT launched the index in 1995. The airlines also reported their largest domestic profit margin (7.2 percent) since 2000 in the second quarter of this year, according to the bureau. Analysts expect the U.S. airline industry to return to profitability this year, with the exception of Delta and Northwest Airlines, which are still under bankruptcy protection. But even with this windfall, "the legacy airlines have failed to invest in their product," says Forrester VP of Travel Research Henry

Harteveltdt.

"Today, you'll pay \$1,000 to fly a [traditional] airline between California and Chicago," Harteveltdt points out. But "the airlines haven't redecorated their planes or put in new seats since Clinton was in office. They've taken away amenities. You have to pay \$5 to get a crappy sandwich. Now that passengers aren't paying those \$79 each way fares anymore, their patience will wear out."

And, perhaps, Virgin America will step in.

—S.O.



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“Don’t over-promise or under-deliver. You look at Southwest, they under-promise and over-deliver.”

—TODD PAWLOWSKI, VIRGIN VP FOR GUEST SERVICES

when they check in for a flight.

The only other customers signed on with Aires are Virgin Blue in Australia and WestJet, a low-cost Canadian carrier, so Virgin America will have a first-mover advantage stateside. Of course, it will also assume first-mover disadvantages.

“You’ve heard the old saying, no CIO ever got fired for buying IBM? Well, no airline CIO would ever be dismissed for going with Sabre,” says Harteveltdt. “There’s always risk with a new product that’s just proving itself. There will be hiccups,” he predicts.

No one knows that better than Maguire. “If [Aires] doesn’t work, we don’t fly,” he says, just back from a late summer trip to Delhi, India, to check on the system’s progress. His mission there was twofold. “First off, I wanted to build a relationship with the developers, let them know who I am, how I think, what my expectations are. I wanted to meet them face-to-face and talk to them about how critical this is to us,” Maguire says. “I also went over there to talk to their VPs about where we were with the implementation and changes we’d like to see before going into production. And how they will support us on a 24/7 basis once we’re in production.” It went well, he says.

But everyone’s expecting some turbulence with the implementation. “The reservation system presents *the* highest risk to the business,” says Maguire. The Aires system infrastructure has multiple layers of redundancy to minimize unscheduled outages. But to minimize risk overall, Mag-

uire’s team is working closely with Cendant to ensure that performance, stability and scalability are more than adequate to meet Virgin America’s load requirements.

“Sabre is a great product, and they’ve spent millions of dollars putting lots of makeup on that old technology,” says Pawlowski. “But they’ve pushed it as far as they can, and it’s time to start thinking about what’s next.”

Ready for Takeoff?

As of September, Maguire and his team had turned on the first big piece of the network and had the data center and its monitoring tools up and running. HR, finance and flight operations applications were live. “The only thing left is the reservations system and our production website,” Maguire says, knowing those are two critical pieces of the puzzle. The goal was to have them both in production by the end of this year.

Virgin America is planning to begin flying early next year, after it receives approval from both the Department of Transportation and the Federal Aviation Administration (see “Flight Delays,” Page 68), and most industry watchers expect a successful takeoff. “They’re flying a very competitive route, and it’ll be stiff competition,” says John Kasarda, director of The Frank Hawkins Kenan Institute of Private Enterprise at the University of North Carolina. “But Virgin America will come off the blocks capturing a portion of the market and doing very well.”

“Virgin America has an advantage right out of the gate because of the brand, which will get people on the first time,” says The Boyd Group’s Sieber. “The question is, do they have a product that can compete long term? That remains to be seen. At one time Pan Am had the most recognized brand in the industry, and that didn’t keep them out of trouble.

“Don’t get me wrong,” Sieber continues, “if I were starting an airline, I’d certainly want to have that brand advantage.

“But I’d still use my ex-wife’s money.”

What’s also up in the air is how the competition will respond. Legacy carriers, which have finally figured out that they can’t compete on price, may be forced to improve the service that they’ve whittled away over the past five years. Some, like Delta, may put their emphasis elsewhere, like the Chinese market, leaving the domestic routes largely to the low-cost carriers.

JetBlue, no longer the new kid on the block, may invest further in the customer experience. Its wholly owned subsidiary recently won a Federal Communications Commission auction for a very hot commodity—a slice of radio airwaves devoted to air-to-ground communication—that, if it gains approval by the FAA, could enable the company to provide Wi-Fi in the sky.

“It’ll be interesting to see how JetBlue responds,” says Harteveltdt. “If Virgin sells meals on board, will JetBlue sell meals on board? If they go to a two-class service offering, will JetBlue go to a two-class service offering? JetBlue has marched to its own drum for six years, but you can’t ignore the competition.”

In fact, Virgin America has gotten many of its best ideas from its soon-to-be rivals, including what Pawlowski insists must be a guiding principle if the airline is to succeed: “Don’t over-promise or under-deliver. You look at Southwest, they under-promise and over-deliver. Or look at JetBlue—there are a lot of fans here of JetBlue. We can learn from those airlines.

“It’s a bit of a challenge because there are going to be expectations with a Virgin brand. But we hope to compete on value, the ability to customize the customer experience, and the bells and whistles of the more established airlines. Hopefully that adds up to a differentiated product that people will embrace.” **CIO**

Senior Editor Stephanie Overby can be reached at soverby@cio.com. To comment on this article, go to the online version at www.cio.com/110106.

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Business and IT are locked in a struggle over who controls the management of business process improvements. CIOs who seek to lead the charge have their work cut out for them.

BY MERIDITH LEVINSON

In the 1990s, Michael Hammer and James Champy's blockbuster book, *Reengineering the Corporation*, set off a tidal wave of business process improvement initiatives throughout corporate America. The two management gurus showed that redesigning a company's processes, structure and culture could lead to a dramatic increase in performance. But a lack of attention to change management and the impact of these initiatives on employees yielded counterproductive results in many companies that tried to put Hammer's and Champy's ideas into practice. The once golden notion of business process reengineering took on a tarnish and fell out of fashion. Today, business process improvement has a new name—business process management—and is in vogue again. Spurred by the pressures of global competition, commoditization and government regulation, American companies are reexamining their business processes in search of more efficient ways to execute them through automation or even outsourcing. Companies again see business process management (BPM)—the practice of continually optimizing business processes through analysis, modeling and monitoring—as a systematic approach for solving business problems and helping them meet their financial goals.

"Companies are realizing that a good, solid understanding of their processes is essential to achieving any of their performance objectives," says Roger Burlton, founder of consultancy Process Renewal Group. "Most organizations, if they're not already doing something [with BPM], are starting to get into it."

Reader ROI

- ∴ Why CIOs need to be proactive about business process management
- ∴ How to collaborate with the business to resolve control issues
- ∴ Why you don't have to own a process to drive change

WHOSE BUSINESS IS PROCESS IMPROVEMENT ANYWAY?



MTC hired CIO **Larry Grotte** to put in place business processes and technologies to streamline terminal operations, increase productivity and drive revenue.

THE POLITICAL TUSSLE

As BPM takes root in corporations throughout America, a struggle for control between the business and IT is ensuing. Historically, the business has managed its own process improvements. But the arrival of sophisticated BPM tools and IT's ability to operate across the enterprise have given rise to the belief that IT should lead the charge.

It's an idea that naturally incites pushback from the business. Burlton notes that BPM projects dealing with CRM or supply chain management initiated by IT often get subsumed into the business when a senior line executive realizes that the very processes IT is automating are those that drive his segment's revenue. The executive worries that if IT screws up and his unit doesn't meet its financial goals as a result, his bonus—and maybe his job—could be on the line.

Many of them also view IT as a bottleneck that adds cost and complexity to projects, so they're hesitant to cede BPM to the CIO, according to Burlton. Finally, territorial instincts fuel their desire to control process management initiatives that affect their turf. (For ideas on how to work effectively with line-of-business managers who own BPM initiatives, read "Keeping Your Hand In," this page.)

Even some IT execs are leery of leading BPM: Farrukh Humayun, National City Bank's vice president and portfolio architect in charge of business systems, says the business must own BPM to be successful. "BPM is a business discipline," he says. "IT can be a powerful enabling force...but the IT folks will not understand business drivers, processes or metrics as well as the business."

It's no wonder IT executives like Humayun and others are loath to advocate for IT ownership of BPM: So many ERP and CRM projects led by IT failed when employees refused to adapt to changes driven by technology. CIOs have been told that the business needs to lead any big change management initiative and that technology initiatives must have a business sponsor to succeed. So why should BPM be any different?

Well, for a number of reasons. CIOs must make sure IT is a part of these initiatives because so much technology is involved in BPM and because IT will have a hand in automation. What's more, says Karl Kaiser, CIO of the city of Minneapolis, since processes often cut across business silos and IT is the one organization that straddles and supports them all, IT has the best vantage point for leading BPM.

"Doing these things from within [a line of business] can be difficult because they can't see the forest through the trees," says Kaiser. "It's better done by an outside, independent organization

KEEPING YOUR HAND IN

How to drive process change without leading it

Some organizations see business ownership of business process management (BPM) as the only way process changes will take root. In those situations, what can IT do to ensure that it remains a part of BPM activities? Juniper Networks CIO Alan Boehme has an answer.

Boehme came up with an effective way to keep IT in lockstep with the business on process change initiatives while giving control over processes to the business. He recognized the need for a program manager who would live in a particular business function, such as sales or HR, and who would be responsible for driving process change within that function. This program manager would also serve as a single point of contact for the IT department on issues of integration, automation and IT support. And, thought Boehme, who better to serve in this role than one of his IT professionals, with his knowledge of systems and understanding of business processes and operations?

Boehme shared this idea with Juniper's executive VP of sales and customer service. He told his colleague that process improvements could be sped up if someone in IT focused entirely on the sales organization. If the sales group had a dedicated program manager, the CIO continued, it could more quickly make process changes to drive revenue and increase customer satisfaction. After thinking it over and talking with others in the sales organization, the executive VP agreed. He hired one of Boehme's IT directors into his organization as a program manager.

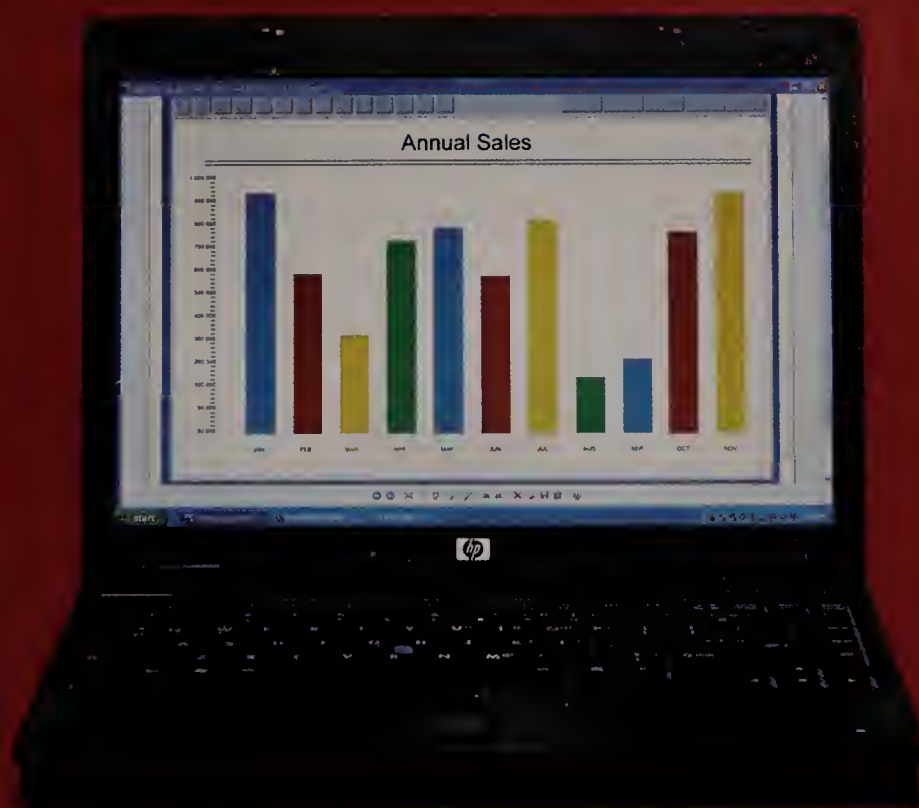
This new program manager has experience supporting Juniper's sales and customer service teams. Now that he's a sales employee, he has the credibility to drive process change from within. At the same time, his understanding of the IT department lets him work well with it on mapping processes to systems and detailing the integration points between systems. It's a best-of-both-worlds, win-win situation.

—M.L.

[such as IT] with no ax to grind."

Many BPM practitioners believe that since the business owns the processes, it should drive BPM. However, Burlton says, you don't have to own a particular process to lead the charge. "IT doesn't own the data stored on its servers, but they do provide the service of assuring that the data has integrity, is managed well and is secure," he says. Similarly, IT can guide the business through a process improvement initiative by offering process analysis, modeling, design and automation services.

"If anybody in an organization really understands the importance of process, it should be the people in IT because...they have more experience in building models, doing analysis and looking for optimal solutions," says Burlton.

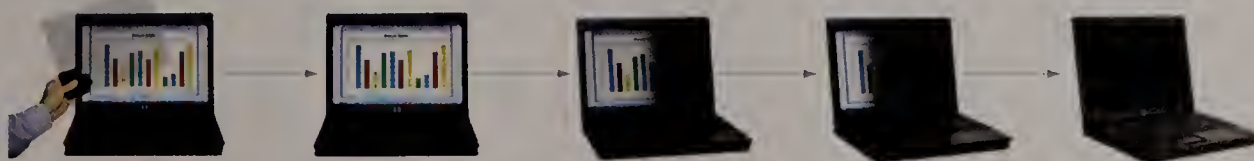


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“Many companies have successful, IT-driven BPM initiatives because their goal was to serve the business and to collaborate with the business, not to define the latest, greatest, coolest technologies.”

—Robert Salazar, VP of process management, First Horizon National

There's no reason why IT can't lead BPM, he adds. “The question is whether they'll be allowed to by the rest of the organization.”

CIOs who seek an active leadership role in BPM have their work cut out for them. But if they can earn the trust of the business and take charge of BPM, the payoff is big. Doing so will boost their profile and that of their IT organization. It will also facilitate their SOA plans, says Burlton, because process management initiatives identify the business services common across the enterprise that IT can then program and package for reuse as part of its SOA strategy. “If companies do process management properly across the board, IT can do service-oriented architecture properly,” he says.

Finally, if IT can offer the business BPM services the same way it provides application development services, it will increase the department's value inside the company and bring it closer to the business.

CIO talked to three IT executives who are successfully leading BPM inside their companies. They share their experiences below.

THE MARKETING CHALLENGE

In 2001, the city of Minneapolis got serious about creating a 311 system to better handle the 10,000 phone calls made to city offices daily. At the time, if a caller needed to report a stray dog, a pothole or a bum traffic light, she had to search through more than 275 listings for city government offices in the phone book's blue pages. Callers often didn't reach the right office on the first try and got bounced from one municipal worker to another. Some just called 911, tying up emergency operators with reports of broken parking meters. The 311 system, which included the creation of a call center and the implementation of a “constituent” relationship management system to track issues and route them to the appropriate offices within city government for resolution, would make it easier for citizens to get access to information and increase city government's responsiveness and efficiency.

CIO Kaiser took charge of the project, which the city had been mulling since the late 1990s. He was ultimately responsible for getting the project approved, obtaining funding, imple-

menting the system and promoting it to city residents.

During the implementation, he occasionally encountered municipal employees who pointedly told him that he and his IT department shouldn't be in charge of the project. Officials inside the Public Works department, which handles citywide maintenance such as repairing potholes and erasing graffiti, didn't like IT meddling with their processes or weighing in on how they should coordinate their efforts with other agencies. They had their ways and they wanted to stick with them, says Kaiser.

And what did IT know about repairing potholes anyway? The department, then known as Information and Technology Services (ITS), had a reputation within City Hall before the initiative started for barely being able to fix frozen computers, let alone manage large projects. Some city workers translated the acronym ITS as “It Totally Sucks.”

Kaiser knew he had to combat the IT department's dismal internal reputation to win over the business. So in 2002 he outsourced all IT infrastructure to Unisys to focus his department on making city government more efficient and responsive. He also renamed the department Business Information Services to put the emphasis on the information services the group provides to the business. He said that it took him “the better part of three to four years to gain the credibility that [the members of his department] are the ones that have the diplomacy in place and the understanding of business needs” to lead process change initiatives.

Members of the city council also felt threatened by the 311 system. They worried that they'd lose touch with their constituents, who could now dial 311 instead of calling their councillor for help.

Kaiser had a considerable sales job on his hands. He was certain

that in spite of its bad rap, IT was best positioned to lead this monumental effort, which transcended the entire umbrella of city government. “I had to do a lot of selling to convince people that since IT is responsible for information services across the entire city, we cut across silos and are logically the best place to come to do things that involve change,” says Kaiser.

Kaiser overcame resistance from Public Works and the City Council by articulating the unique benefits each would reap from the new system. For Public Works, explained Kaiser, the

Organization City of Minneapolis

Business process to be managed: Calls to report problems or to access municipal services.

Why: With more than 275 phone numbers for city government, citizens never knew which one to call.

Key success factor: An intimate understanding of his stakeholders' jobs enabled Minneapolis CIO Karl Kaiser to show city officials how a systematic approach to handling constituent phone calls could ease their burdens.

Payoff: Residents now call one number—311. Most calls are answered within nine seconds.

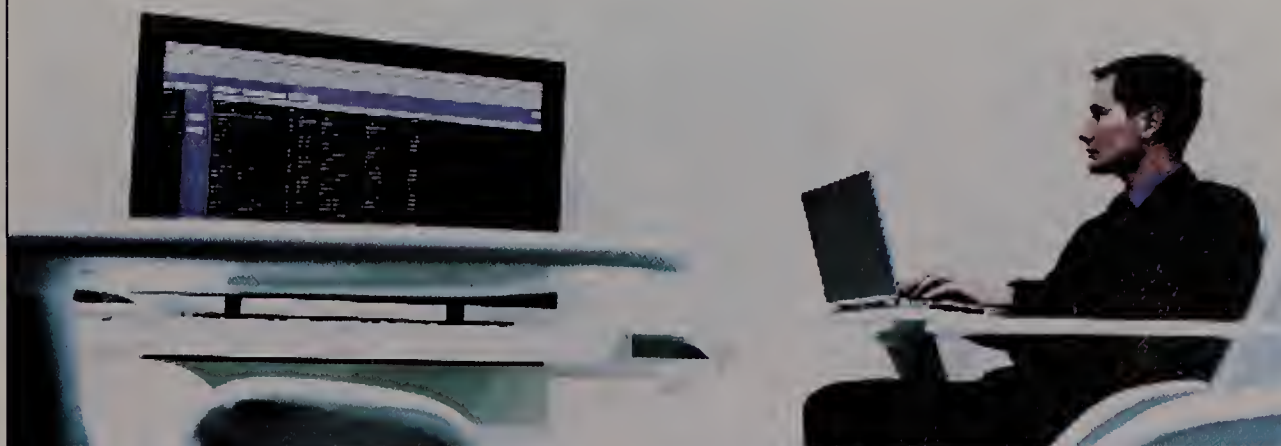


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311 system would free up employees by diverting calls to call-center agents trained to answer questions about potholes, traffic lights and graffiti abatement. Kaiser also showed managers how they could use the CRM part of the system to track how long it took the department to address problems logged through the call center and explained how that information would help them prioritize work and allocate staff.

Kaiser reminded city council members of the multitude of calls they get that should be directed to another branch of city government, such as Public Works. The 311 system would enable councillors to focus on the calls where they could have the greatest impact. He also showed them in demos how they could query the system from their PCs to see how many calls came in from their wards and the nature of those calls so that they could elect which ones to follow up on.

Kaiser understood his critics' businesses so well, he was able to develop convincing messages that addressed their concerns head on. Selling stakeholders on IT-led business process change, he says, is the role of the CIO today. "You have to have patience,

a game plan, a vision, and be in a position to articulate what's at the end of this and why it's worth going through."

After a year spent selling city officials on the value of this 311 system, Kaiser obtained city funding and federal grant money for the project. Since the new \$6.3 million system went live in January 2006, an average of 67 percent of phone calls are resolved immediately, and calls are answered in an average of nine seconds. The launch of the 311 system also cemented the IT department's reputation as a true business partner and enabler.

"We have in essence become a business change agent in the city," says Kaiser. "It used to be when I walked the halls, people slammed their doors. Now they knock on my door and say, 'We need your help.'"

CARROTS AND STICKS

Last September, MTC Holdings hired Larry Grotte as its first CIO. The stevedoring company, based in Oakland, Calif., created the position because it needed someone to oversee the imple-

mentation of best practices and technologies to streamline terminal operations and increase revenue through productivity improvements at its seven operating companies. Currently, each of the operating companies that run terminals has its own processes for doing so. Grotte is charged with reconciling the operating companies' disparate processes with standard technology. His top priority? Shepherding a pilot program of new processes and technologies for moving trucks in and out of MTC's terminals at the port of Los Angeles and the port of Long Beach, Calif., the second busiest port in the United States. The new process will eventually roll out to other MTC terminals.

MTC competes in the stevedoring world on the basis of how efficiently it runs its terminals. The faster its operating companies can load and unload shipping containers and the faster they can get 18-wheelers in and out of their terminals, the more business they can do and the more money they can make from unloading cargo from ships and charging terminal entrance fees to truckers.

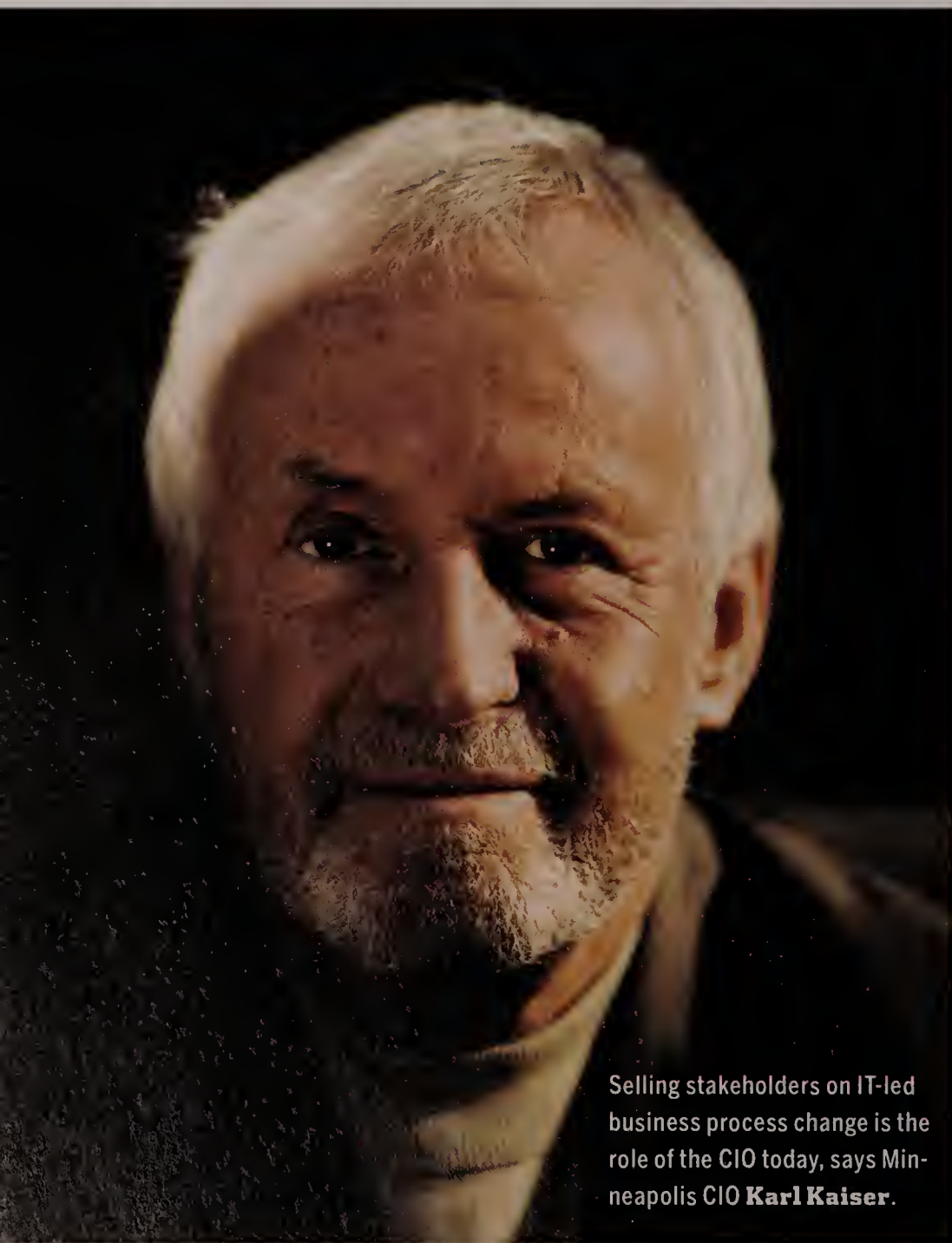
Organization MTC Holdings

Business process to be managed: Admitting and moving trucks inside MTC's Long Beach, Calif., terminals.

Why: Traffic congestion hindered productivity for truckers and terminal operators; it also heightened security risks.

Key success factor: MTC got drivers to follow the terminals' new processes by offering them better rates and preferential treatment.

Payoff: Congestion was reduced by 30 percent and productivity increased by 25 percent.



Selling stakeholders on IT-led business process change is the role of the CIO today, says Minneapolis CIO **Karl Kaiser**.

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"We have in essence become a business change agent in the city."

—Karl Kaiser, CIO, Minneapolis

"If you have a terminal that's X number of acres sitting on a piece of dirt in the Pacific Ocean, you can't grow its acreage but you can grow its throughput: You can either stack containers higher or move them faster. We have to keep pushing more throughput at our terminals," says Grotte.

At MTC's Long Beach terminals, truck traffic was a nightmare. Terminal operators had no way to keep tabs on trucks inside their facility. There was no process for admitting trucks, which were all vying for entry during the peak daytime hours of 3 a.m. to 6 p.m., or for moving them around the terminal. This hampered productivity, created congestion and heightened security risks.

To improve operations at the two Long Beach terminals, Grotte developed a system that identifies trucks as soon as they enter the terminal's gate and directs the drivers from point to point while they're inside the terminal. Terminal operators now affix GPS devices to trucks as soon as they enter the facility. The GPS devices, each of which has a unique identifier, connect to the terminal operating system. Traffic controllers inside the terminal use the system to monitor congestion and to tell truckers where to go next. Truckers must also now schedule appointments to enter MTC's Long Beach terminals during peak hours. Those appointments are tracked in a new system MTC developed called VoyagerTrack.

To further increase productivity and reduce congestion at the Long Beach port and on neighboring highways, MTC and an alliance of marine terminal operators in Southern California expanded their operations to 24 hours a day and created incentives to get truckers to enter their terminals at night. They offered reduced entrance fees for after-hours arrivals and charged trucking companies that continued to operate during normal business hours a "traffic mitigation fee" to offset the cost of operating during off-peak hours from 6 p.m. to 3 a.m. Off-peak appointments are scheduled in a new system called PierPass.

Knowing truckers earn their keep based on the number of containers they move, Grotte and the West Coast Marine Terminal Operators convinced the drivers that following the new procedures would increase their productivity and profitability. For example, if they made appointments to enter the terminal—day or night—they wouldn't have to wait in line to get in. Thus, truckers could get in

and out of terminals faster, giving them the opportunity to earn more revenue by transporting more cargo and making more trips.

"By moving their same fixed fleets faster, trucking companies improve their profitability and their return on assets," says Grotte. And those truckers who switch to the night shift experience the added benefit of smoother traffic through the terminals. In this manner, Grotte got nearly 99 percent of the trucking community on board with VoyagerTrack at MTC's Long Beach terminal. "These trucker communities and marine terminal communities know they need to constantly cannibalize their processes just to stay with the game," says Grotte.

Since deploying those new processes and technologies, Grotte estimates that MTC has increased the productivity of its Long Beach terminals by 25 percent and reduced traffic congestion during the day by 30 percent. Grotte plans to roll out the new system to MTC terminals around the United States.

NO PARTNERS, NO PROCESS

Robert Salazar, the vice president of process management for financial services firm First Horizon National in Memphis, Tenn., oversees his company's BPM initiatives. First Horizon has been doing BPM since July 2005. Salazar's role is to define the direction of all the initiatives and serve as a liaison among all the parties engaged in them.

This makes him the go-to guy when a business manager realizes a process needs attention. In 2005, for example, the business

wanted to improve its process for handling exceptions that come up during loan origination. Salazar got the process owner for exception handling (here, the executive VP of risk management) together with business analysts and with representatives from each functional group (loan processing, underwriting and IT) that plays a role in the process. The group defined and documented the scope of the process improvement project, the goals and the key capabilities to be delivered. The team analyzed existing processes, modeled new ways of

handling exceptions and implemented new technology.

The goals were to be more responsive to end customers, to make decisions about exceptions more quickly, to reduce costs and to increase the accuracy of the loan origination process. The key capabilities were automating a manual workflow and providing visibility into the process as well as supplying mechanisms for tracking and escalating all related transactions. Although Salazar declined to share specific metrics, he said the cost of handling exceptions has decreased, while customer service has increased.

Salazar says IT hasn't battled the business for control of BPM. Instead, IT views BPM as a way to work with the business to serve customers. "You can't view BPM as a technology issue. It's

Organization **First Horizon National**

Business process to be managed: Improving loan processing times.

Why: Loans that require additional appraisal work or data slow down the approval process for customers and cost First Horizon more money.

Key success factor: A BPM methodology to facilitate collaboration between business and IT.

Payoff: By automating the process of handling exceptions, First Horizon decreased its administrative costs and improved customer satisfaction.

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all about creating business value," he says. Salazar adds that the key to making IT's governance of BPM work is close-knit collaboration between the two parties. First Horizon achieved that through Salazar's reporting relationship and through a homegrown methodology he uses for BPM.

Salazar reports directly to the CIO but maintains a dotted line to First Horizon's executive VP of operations. That dotted line gives Salazar the ability to get process owners and line-of-business managers involved. His tight link to the IT department ensures that any automation effort is in sync with what line-of-business managers need to run their shops effectively and with the broader IT strategy.

First Horizon's custom BPM methodology also secures the business-IT partnership by defining those who need to be involved in any process improvement initiative and their responsibilities. For example, the methodology spells out that a process improvement initiative must involve representatives from every functional group involved, and it must be led by a process owner. The process owner is responsible for ensuring that the project team stays on track, and for playing the role of tiebreaker when the team can't achieve consensus.

The BPM implementation group developed the methodology with Fuego (acquired by BEA Systems). It is based on the principles of Agile software development, which emphasizes a close working relationship between business users and developers, frequent face-to-face conversations among stakeholders and regular work reviews, both of which keep all parties on the same page.

The close-knit collaboration between the business and IT resolves the control issues that dog many BPM initiatives. Since BPM is a service IT provides to the business and because Salazar reports in to the business through the executive VP of operations, line-of-business managers and process owners feel comfortable approaching him for help with process improvement initiatives. And the BPM methodology he's put in place gives the process owners the control they need over their processes. IT, meanwhile, is never left out of any planning.

"I know many companies that have successful, IT-driven BPM initiatives and that's because their goal was always to serve the business and to collaborate with the business, not to define the latest, greatest, coolest technologies," says Salazar.

Talk About Business Process Reengineering

Join the **CIO Executive Council** follow-on teleconference to this story, featuring an interactive presentation by **Will Showalter**, CIO of \$2 billion Fairview Health Services, on how IS owns and manages **CROSS-ENTERPRISE BPR**. It takes place Nov. 30 at 2 p.m. ET. To register, contact Jennifer Baker at jbaker@cio.com.

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PROVIDERS OF BPM SUITES

Business transformation, compliance with government regulations, quality improvement programs and the move to service-oriented architecture are all driving corporate spending on business process management suites (BPMS). These integrated packages of software tools support process improvement activities such as process analysis, design, modeling and simulation, and the coordination of sequences of steps and tasks involved in a process. Sales of BPMS are growing at more than 20 percent annually, according to Forrester Research. Forrester expects the BPMS market to more than double over four years from \$1.2 billion in 2005 to \$2.7 billion in 2009. —M.L.

The following vendors, which Gartner included in its "2006 Magic Quadrant for Business Process Management Suites," are poised to capitalize on that growth:

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| ▶ Graham Technology | |

Source: Gartner

KEYS TO SUCCESS

Just because it's called business process management doesn't mean IT has to take a backseat in these initiatives. As the city of Minneapolis, MTC Holdings and First Horizon National show, CIOs can successfully drive BPM if they encourage collaboration and understand the needs, concerns, pain points and existing processes of the business.

Looking to the future, Process Renewal Group's Burlton says CIOs have to become more proactive in business process management. It's in their best interest to do so because BPM is at the center of so much IT activity. Says Burlton, "Process is so important right now because it is the linchpin of all these other things we've talked about for years: ERP, CRM [and now SOA]. Process holds everything together." **CIO**

Senior Web Editor Meridith Levinson can be reached at mlevinson@cio.com. To comment on this article, go to the online version at www.cio.com/110106.



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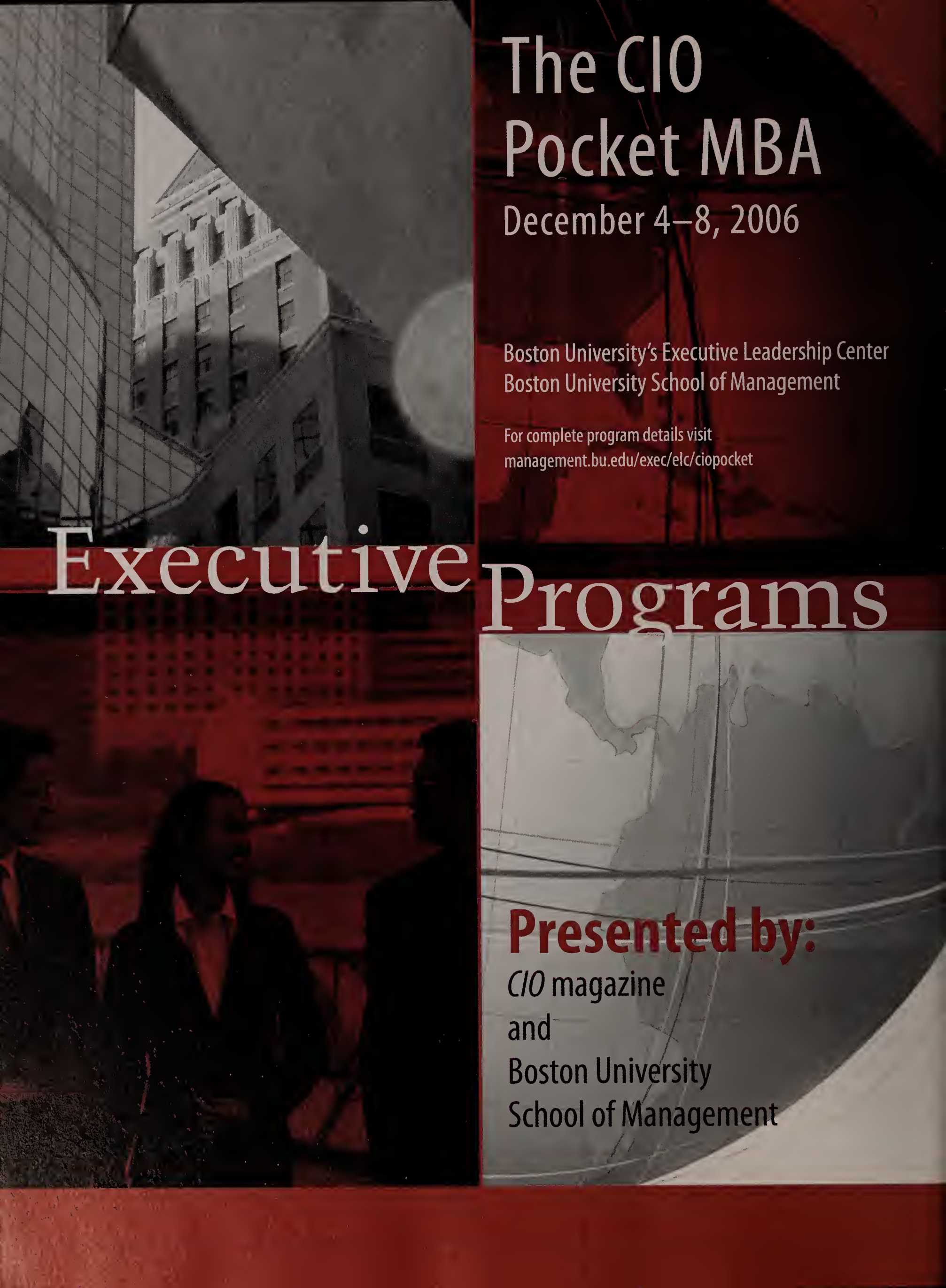
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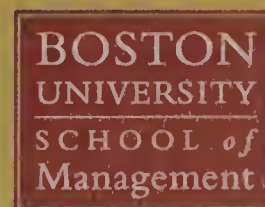
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If You Build It (Right), IT Will Work

Take off your CIO hat for a moment and imagine you're in charge of building a new housing development. The first thing you'd do is hire an architectural firm to create a master plan. Then you'd bring in the builders. They'd take the blueprint and build your development, hewing



**MICHAEL
RAPKEN**

to the architectural vision. Now, put your CIO hat back on. This analogy—offered by Michael Rapken, CIO of transportation company YRC Worldwide—is worth internalizing as you construct your IT department today.

Enterprise architecture (EA) has been one of the most common research requests the CIO Executive Council staff has fielded this year from member CIOs. Many of the questions concern the EA group itself—how to create it, structure it and staff it. EA groups generally function as standards setters, review boards and proactive visionaries. Council members offered these four tips to ensure that an EA team will pay dividends for CIOs.

1 Respond to a real business need. For Rapken, acquisitions and extreme growth necessitated the creation of an EA group. "We grew from \$2 billion to \$9 billion in three years through acquisition. We had a

complex environment, a bigger portfolio of applications, and we needed to focus on simplification," says Rapken.

Mergers and acquisitions also play a role in the need for EA teams. "After the merger with Texaco, we moved from operating in country-by-country silos to being a globally integrated company. An EA group is a key ingredient to making this transition successful," says Louis Ehrlich, VP of services and strategy and CIO of Global Downstream at Chevron.

Christy Ridout, CIO at the Washington State Department of Labor and Industries, helped create an EA strategy at the state level in 2003. Confusion was rampant among the state's agencies about what services should be provided centrally and what the agencies should pursue. Ridout and her colleagues thought an EA program would help provide a structured framework to answer these questions.

2 Sponsorship is key. Since agency CIOs staff statewide EA initiatives with their own budgets and architects, Ridout had to get their buy-in. She encouraged them to think about what made sense statewide rather than simply for their own agency.

Multiple CIOs also had to sponsor Chevron's EA strategy—the corporate CIO sponsored the enterprise team while the functional CIOs, like Ehrlich, gave their enterprise-level support and focused on creating their own EA groups in addition to the central EA team. *Continued on Page 92*

[ONE::LINER]

"Collaboration between architects and developers is critical. Architects are like chefs—the only way good chefs really know how their food tastes is if they step out of the kitchen."

—BRENT STAHLHEBER, CIO, THE AUTO CLUB GROUP



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[HOT JOBS]

Help Wanted

John Bloom, chief architect for Chevron's corporate IT, shares a job description of what he is looking for in an enterprise architect. (For more on the enterprise architect position, see "Wanted: Enterprise Architects," www.cio.com/030105.)

The enterprise architect is a member of the IT strategy, planning and organizational capability team, which leads the development of global IT strategy and enterprise architecture. The primary focus for this position will be business architecture, information architecture and applications portfolio, rather than technology architecture or application design patterns. This position reports to the manager of IT strategy.

Key Job Responsibilities:

- Collaborate with business representatives to understand IT requirements generated by business strategies and operations.
- Develop and implement the architecture for global IT solutions, with focus primarily on business architecture, information architecture.
- Engage business and IT leaders to understand and document business strategies, key performance indicators and how they apply to IT asset investments (primarily applications and data leading to infrastructure).
- Help the company use architecture to plan, describe and deliver business solutions.
- Consult on IT solution development.
- Lead or participate in architecture studies. Guide architecture reviews of IT solutions.
- Facilitate the development and evolution of the architecture and governance processes. Facilitate the process for approving architecture standards.
- Document and communicate the enterprise architecture.

Get Enterprise Architect Job Descriptions

Visit the online version of this article to download four distinct EA job descriptions shared by CIO Executive Council members at www.cio.com/110106.

CIO.com

If You Build It (Right), IT Will Work

Continued from Page 90

3 One size doesn't fit all. There are many ways to organize an EA group, and CIOs can experiment with different models to find the best one.

» **Virtual teams.** Helen Polatajko, CIO at CIBC Mellon, says the small size of her IT group (120 staff) is the main reason she kept her architects decentralized in a virtual EA team. "I have four architects—applica-



**HELEN
POLATAJKO**

tions, infrastructure, security and desktop—who still report in to their lines of business. But to ensure that there's collaboration and to push the IT strategy forward, they come together to look at architecture at the enterprise level," explains Polatajko. There's no chief architect, although Polatajko and two other VPs from IT join in EA discussions to lend insight.

Brent Stahlheber, CIO at The Auto Club Group, has shifted from a centralized group to a virtual one.

"What I was seeing when I had the centralized EA group was a disconnect between my architects and the business," he says. By placing the architects back into the application development and infrastructure support areas, Stahlheber anticipates that they will be better in tune with the business.

» **Federated model.** John Bloom, chief architect for Chevron's corporate IT, and his team of 12 serve as an EA center of expertise for Chevron's lines of business and head up corporatewide architecture initiatives. Ehrlich has his own EA team of eight providing support for Global Downstream, and he doesn't hesitate to call upon Bloom's staff for guidance. This model has been in place for two years.

» **Hybrid of centralization and functional level.** When he began in 2005, Rapken of YRC Worldwide opted for a hybrid model. It includes a centralized EA team of 20 to 30 who work with architects as well as people from the various operating companies. He chose one of his VPs to lead the new EA team. "I wanted to avoid the ivory tower syndrome where architects are viewed purely as picture-drawers without a clue when it comes to projects," says Rapken. With the centralized team working closely with the line architects, they can ensure that what they design gets built correctly.

4 Look outside IT. Participation and support from outside of IT is important for credibility and buy-in, as well as for maintaining alignment. "If the architecture team is pushing a specific philosophy, disregarding business value, business leaders will dismiss them," says Vince Kellen, VP of IS at DePaul University. The goal of the EA team should always be to add value to the business. Building strong relationships and teaching others about the importance of an enterprise approach goes a long way. **CIO**

Carrie Mathews is senior program manager at the CIO Executive Council.

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COMPANY INDEX

451 Group, The	27	Google Inc.	17
Adobe Systems Inc.	76	Graham Technology	76
AIG Technology	27	Hess Corp.	48
American Airlines Inc.	60	Hewlett-Packard Co.	17, 27
Appian Corp.	76	Hurwitz & Associates	27
Applied Materials Inc.	17	IBM Corp.	76
Auto Club Group, The	90	Innovation Advisors	17
Avnet Inc.	17	Intel Corp.	34
Axway Inc.	76	IntelliContact	27
BEA Systems Inc.	76	InterDigital Communications Corp.	17
Blogads.com	17	JetBlue Airways Corp.	17, 60
Blue Frog Solutions Inc.	17	Juniper Networks Inc.	76
Boyd Group, The	60	John's Hopkins University	44
Brennan Center for Justice, The	17	Lombardi Software Inc.	76
CA Inc.	76	Metastorm Inc.	76
Carlson Cos.	17	Motorola Inc.	17
Cendant Corp.	60	MTC Holding	76
Chevron Corp.	90	Mutual Service Corp.	17
CIBC Mellon	90	MySpace.com	17
Civitiun LLC	17	National City Corp.	76
Concours Group, The	48	Newton-Wellesley Hospital	17
Customers.com Co., The	10	OpenLogic Inc.	27
Dell Inc.	60	Partners HealthCare System Inc.	48
Delta Air Lines Inc.	60	Pegasystems Inc.	76
Diebold Inc.	17	Pressflex LLC	17
FedEx Corp.	17	PriceWaterhouseCoopers	27
First Horizon National Corp.	76	Process Renewal Group Inc.	76
FMR Corp.	34	RagingWire Enterprise Solutions Inc.	17
Forrester Research Inc.	17, 27, 60	Red Hat Inc.	27
Fujitsu	76	Rudolph and Sletten	27
Gartner Inc.	76	Russell Reynolds Associates	17
Gather Inc.	17	Salem Web Network	17
Global360	76	Savvion Inc.	76
		Secured Funding Corp.	76

SENSEable City Consortium	17	Fujitsu Computer Systems Corp.	29
Sentillion Inc.	17	Global Crossing	45
Singularity Ltd.	76	Hewlett-Packard Co.	63
SourceLabs Inc.	27	IBM Corp.	C2
SpikeSource Inc.	27	Informatica Corp.	41
Tibco Software Inc.	76	Intel Corp.	7, 42
Townhall.com	17	Iowa Department of Economic Development	57
TSGI Holdings Inc.	60	(ISC) ²	69
Ultimus Inc.	76	Juniper Networks Inc.	35
Unisys	27, 76	Kyocera Mita Corp.	75
US Airways Inc.	60	Manpower Inc.	91
VAI Partners LLC	60	Mercury	83
Virgin Group Ltd.	17, 60	Microsoft Corp.	50, 64
Washington State Dept. of Labor and Industries	90	Motion Computing	13
Wharton School, University of Penn., The	17, 34	Orange Business Services	59
Worldspan LP	48	Perot Systems	73
YouTube Inc.	17	Pillar Data Systems	85
YRC Worldwide Inc.	90	Primavera Systems Inc.	55

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Cingular Wireless	C3	Tata Consultancy Services Ltd.	81
Citrix Systems Inc.	39	Toshiba America Business Solutions Inc.	21
Cognos Inc.	31	Unisys Corp.	37
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EMC ² Corp.	15	Verizon	67
ESRI	23	Verizon Wireless	33

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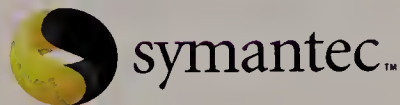
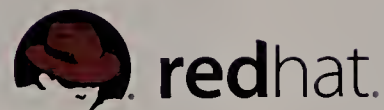
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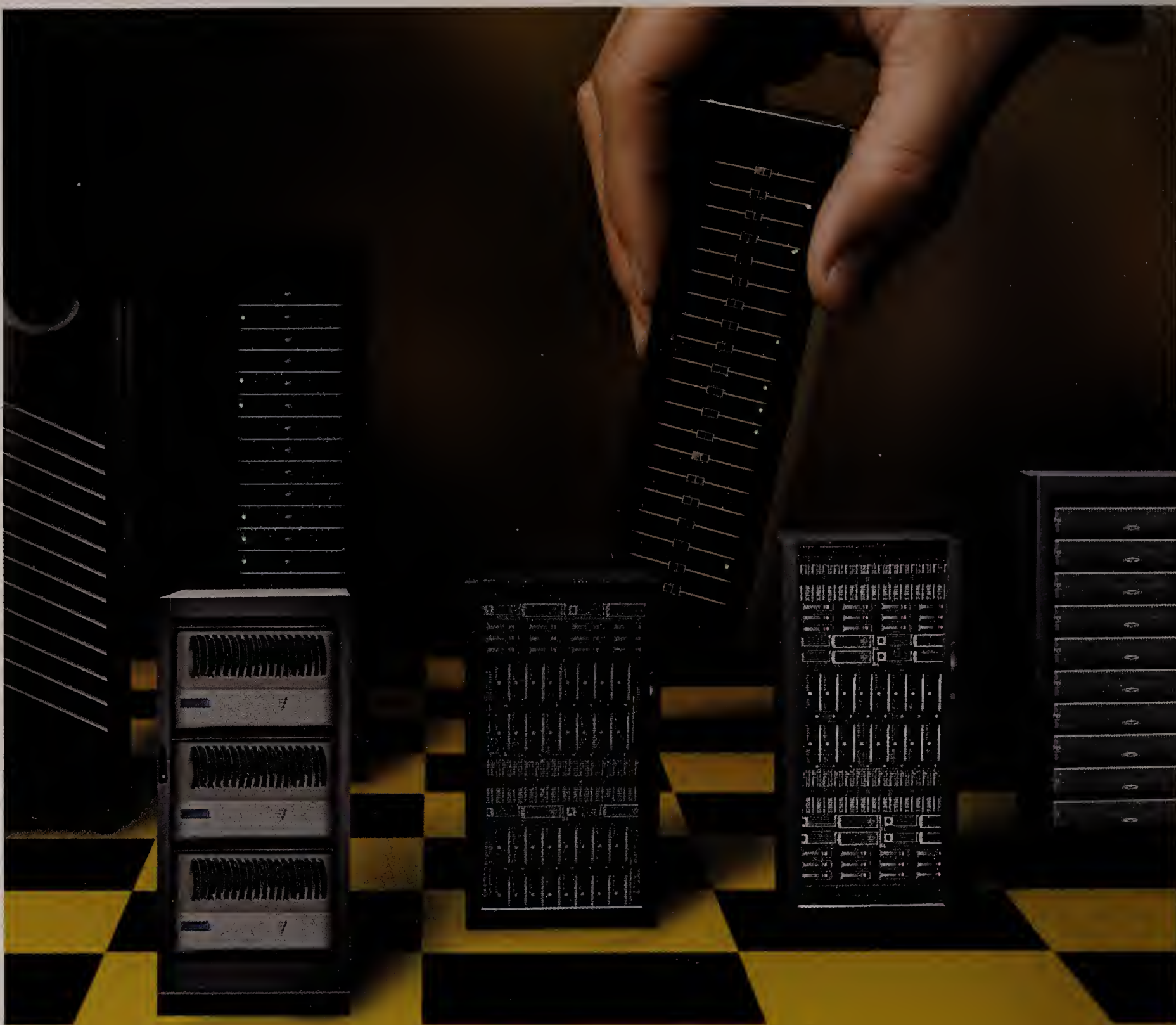
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